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U. S. DEPARTMENT OF AGRICULTURE,
WEATHER BUREAU.

SUNSHINE TABLES,

EDITION OF 1905,

[REPRINTED]

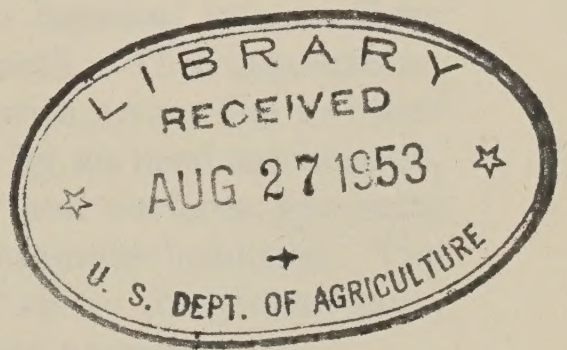
GIVING

THE TIMES OF SUNRISE AND SUNSET IN MEAN SOLAR
TIME AND THE TOTAL DURATION OF SUNSHINE
FOR EVERY DAY IN THE YEAR, LATI-
TUDES 20° TO 50° NORTH.

PART I.

LATITUDES 20° TO 30° NORTH.

By C. F. MARVIN.



WASHINGTON:
GOVERNMENT PRINTING OFFICE,
1923.

SUNSHINE TABLES

EDITION OF 1905

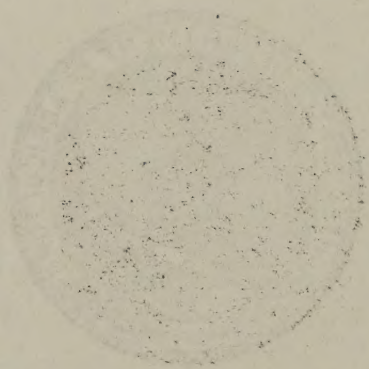
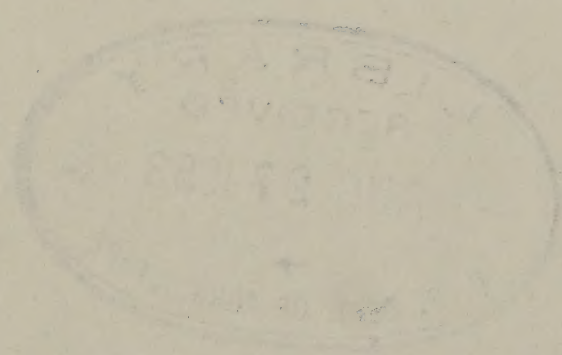
TABLES

THESE TABLES ARE PREPARED AND PRINTED IN NEW YORK
AND THE TOTAL DURATION OF SUNSHINE
IN EACH MONTH AND YEAR IS GIVEN
FROM 1880 TO 1900.

PART I

TABLES FOR THE NORTH

B. C. FLETCHER



SUNSHINE TABLES.

(Edition 1905, reprinted 1923.)

EXPLANATION.

The time of sunrise and sunset at a given place expressed in mean solar time varies from day to day throughout the year, depending principally upon the declination of the sun, that is, its angular distance north or south of a position directly over the Equator. Variations in the equation of time, the apparent diameter of the sun and the atmospheric refraction at the points of sunrise and sunset also affect the final result.

Furthermore, these quantities as well as the solar declination do not have the same values on corresponding days from year to year. It therefore follows that it is impossible to give in any general table the exact times of sunrise and sunset day by day.

The tables which follow have been computed from Table 61, Smithsonian Meteorological Tables, 1897, which gives the duration of sunshine for each 20 minutes of solar declination. To determine the time of sunrise and sunset for each day we have used the values of the solar declination and the equations of time given in the Nautical Almanac for the year 1899, since it is found that these are very close average values and the tables may, therefore, be accepted as approximately correct for all years. In extreme cases the error for one or more months consecutively may amount to between two or three minutes per day, or about one hour per month. This inexactness, however, is of slight consequence compared with errors due to other causes. For example, the table is computed for an ideal sea horizon, a condition only approximately realized on land surfaces, generally and widely departed from in hilly and mountainous localities. The greater or less elevation of the point of view above the ground must also be considered if the most exact results are necessary.

The times of sunrise and sunset are given in hours and minutes. To facilitate computation, the total possible sunshine is given in hours and tenths. In leap years, February 29 is given the same amount of sunshine as March 1.

LATITUDE 20° NORTH.
Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

Date.	JANUARY.			FEBRUARY.			MARCH.			Date.	APRIL.			MAY.			JUNE.		
	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.		Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.
	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.		Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.
1	6 35	5 32	11.0	6 36	5 52	11.3	6 20	6 05	11.8	1	5 53	6 14	12.4	5 31	6 23	12.9	5 19	6 36	13.3
2	6 36	5 33	.0	6 36	5 52	.3	6 19	6 06	.8	2	5 53	6 15	.4	5 30	6 24	.9	5 19	6 36	.3
3	6 36	5 34	.0	6 35	5 53	.3	6 18	6 06	.8	3	5 52	6 15	.4	5 30	6 24	.9	5 19	6 36	.3
4	6 36	5 34	.0	6 35	5 53	.3	6 17	6 06	.8	4	5 51	6 15	.4	5 29	6 24	.9	5 19	6 37	.3
5	6 37	5 35	.0	6 34	5 54	.3	6 16	6 07	.8	5	5 50	6 16	.4	5 29	6 25	.9	5 19	6 37	.3
6	6 37	5 35	.0	6 34	5 55	.3	6 15	6 07	.9	6	4 49	6 16	.4	5 28	6 25	.9	5 19	6 38	.3
7	6 37	5 36	.0	6 34	5 55	.4	6 15	6 07	.9	7	4 48	6 16	.5	5 27	6 26	13.0	5 19	6 38	.3
8	6 37	5 37	.0	6 33	5 56	.4	6 14	6 08	.9	8	4 47	6 16	.5	5 27	6 26	.0	5 20	6 38	.3
9	6 38	5 37	.0	6 33	5 56	.4	6 13	6 08	.9	9	4 47	6 17	.5	5 26	6 26	.0	5 20	6 38	.3
10	6 38	5 38	.0	6 32	5 57	.4	6 12	6 08	.9	10	4 46	6 17	.5	5 25	6 27	.0	5 20	6 39	.3
11	6 38	5 39	.0	6 31	5 58	.4	6 12	6 09	12.0	11	4 45	6 17	.5	5 25	6 27	.0	5 20	6 39	.3
12	6 38	5 40	.0	6 31	5 58	.5	6 11	6 09	.0	12	4 44	6 17	.6	5 24	6 27	.0	5 20	6 39	.3
13	6 38	5 40	.0	6 30	5 58	.5	6 10	6 09	.0	13	4 43	6 18	.6	5 24	6 28	.1	5 20	6 40	.3
14	6 38	5 41	.1	6 30	5 59	.5	6 09	6 09	.0	14	4 43	6 18	.6	5 24	6 28	.1	5 20	6 40	.3
15	6 38	5 42	.1	6 29	6 00	.5	6 08	6 10	.0	15	4 42	6 18	.6	5 24	6 29	.1	5 20	6 40	.3
16	6 38	5 42	.1	6 29	6 00	.5	6 07	6 10	.1	16	4 41	6 19	.6	5 23	6 29	.1	5 21	6 40	.3
17	6 38	5 43	.1	6 28	6 00	.5	6 07	6 10	.1	17	4 40	6 19	.6	5 23	6 29	.1	5 21	6 41	.3
18	6 38	5 43	.1	6 27	6 01	.6	6 06	6 10	.1	18	4 39	6 19	.7	5 23	6 29	.1	5 21	6 41	.3
19	6 38	5 44	.1	6 27	6 01	.6	6 05	6 11	.1	19	4 38	6 20	.7	5 22	6 30	.1	5 21	6 41	.3
20	6 38	5 45	.1	6 26	6 02	.6	6 04	6 11	.1	20	4 38	6 20	.7	5 22	6 31	.1	5 21	6 41	.3
21	6 38	5 45	.1	6 26	6 02	.6	6 03	6 11	.1	21	4 37	6 20	.7	5 22	6 31	.2	5 22	6 42	.3
22	6 38	5 46	.1	6 25	6 02	.6	6 02	6 12	.2	22	4 36	6 20	.7	5 21	6 32	.2	5 22	6 42	.3
23	6 38	5 47	.2	6 24	6 03	.6	6 01	6 12	.2	23	4 36	6 21	.8	5 21	6 32	.2	5 22	6 42	.3
24	6 37	5 47	.2	6 23	6 03	.7	6 00	6 12	.2	24	4 35	6 21	.8	5 21	6 32	.2	5 22	6 42	.3
25	6 37	5 48	.2	6 23	6 04	.7	6 00	6 12	.2	25	4 34	6 21	.8	5 21	6 33	.2	5 22	6 42	.3
26	6 37	5 48	.2	6 22	6 04	.7	5 59	6 13	.2	26	4 34	6 22	.8	5 21	6 33	.2	5 23	6 43	.3
27	6 37	5 49	.2	6 21	6 04	.7	5 58	6 13	.2	27	4 33	6 22	.8	5 20	6 33	.2	5 23	6 43	.3
28	6 37	5 50	.2	6 20	6 05	.7	5 57	6 14	.3	28	4 32	6 22	.8	5 20	6 34	.2	5 23	6 43	.3
29	6 37	5 50	.2	6 20	6 05	.8	5 56	6 14	.3	29	4 32	6 22	.8	5 20	6 34	.2	5 23	6 43	.3
30	6 36	5 51	.2	6 20	6 05	.8	5 55	6 14	.3	30	4 31	6 23	.9	5 20	6 35	.2	5 24	6 43	.3
31	6 36	5 51	.2	6 20	6 05	.3	5 54	6 14	.3	31	.....	6 23	.....	5 20	6 35	.3	.....	.....	.3
Total.....	.....	.....	343.7	.....	{ 28 d 29 d }	321.9 333.7	.....	.....	373.5	.....	.....	.....	378.5	.....	.....	405.5	.....	.....	399.0

LATITUDE 20° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

JULY.				AUGUST.			SEPTEMBER.			OCTOBER.			NOVEMBER.			DECEMBER.		
Date.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.
	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.
1	5 24	6 43	13.3	5 35	6 37	13.0	5 44	6 16	12.5	5 51	5 49	12.0	6 02	5 26	11.4	6 19	5 19	11.0
2	24	43	.3	35	37	.0	44	15	.5	51	48	.0	02	25	.4	20	20	.0
3	25	43	.3	36	36	.0	44	14	.5	51	47	11.9	03	24	.4	20	20	.0
4	25	43	.3	36	36	.0	45	13	.5	51	46	.9	03	24	.3	21	20	.0
5	25	44	.3	36	35	.0	45	12	.4	52	45	.9	04	24	.3	21	20	.0
6	26	44	.3	37	34	.0	45	11	.4	52	44	.9	04	23	.3	22	20	.0
7	26	44	.3	38	34	12.9	45	10	.4	52	43	.8	05	23	.3	23	21	.0
8	26	44	.3	38	33	.9	46	10	.4	53	43	.8	05	22	.3	23	21	.0
9	26	44	.3	38	32	.9	46	09	.4	53	42	.8	06	22	.3	24	21	.0
10	27	43	.3	38	32	.9	46	08	.4	53	41	.8	06	22	.3	24	22	.0
11	27	43	.3	39	31	.9	46	07	.3	53	40	.8	07	21	.2	25	22	.0
12	28	43	.3	39	31	.9	47	06	.3	54	39	.8	08	21	.2	26	22	10.9
13	28	43	.2	39	30	.8	47	05	.3	54	38	.7	08	21	.2	26	23	.9
14	28	43	.2	40	29	.8	47	04	.3	54	38	.7	09	21	.2	27	23	.9
15	29	42	.2	40	29	.8	47	03	.3	55	37	.7	09	20	.2	27	23	.9
16	29	42	.2	40	28	.8	47	02	.2	55	36	.7	10	20	.2	28	24	.9
17	30	42	.2	40	27	.8	48	01	.2	55	35	.7	10	20	.2	29	24	.9
18	30	42	.2	41	27	.8	48	00	.2	56	35	.6	11	20	.2	29	25	.9
19	30	42	.2	41	26	.8	48	59	.2	56	34	.6	11	20	.1	30	25	.9
20	31	42	.2	41	25	.7	48	58	.2	56	33	.6	12	20	.1	30	25	.9
21	31	41	.2	41	25	.7	49	57	.2	57	32	.6	12	20	.1	31	26	.9
22	32	41	.2	42	24	.7	49	56	.1	57	32	.6	13	20	.1	31	26	.9
23	32	40	.1	42	23	.7	49	56	.1	58	31	.6	14	20	.1	32	27	.9
24	33	40	.1	42	22	.7	49	55	.1	58	30	.5	14	19	.1	32	28	.9
25	33	40	.1	42	21	.6	50	54	.1	58	30	.5	15	19	.1	33	28	.9
26	33	39	.1	43	21	.6	50	53	.0	59	29	.5	16	19	.1	33	29	.9
27	34	39	.1	43	20	.6	50	52	.0	59	29	.5	16	19	.0	33	29	.9
28	34	39	.1	43	19	.6	50	51	.0	6 00	28	.5	17	19	.0	34	30	.9
29	34	38	.1	43	18	.6	51	50	.0	00	28	.5	18	19	.0	34	30	.9
30	35	38	.1	44	17	.6	51	49	.0	00	27	.4	18	19	.0	34	31	.9
31	35	38	.0	44	17	.5				01	26	.4				35	32	11.0
Total.			409.4			396.6			367.5			362.3			335.7			339.1

Total for the year, 4432.7. Total for leap year, 4444.5

LATITUDE 21° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

JANUARY.				FEBRUARY.				MARCH.				Date.	APRIL.			MAY.			JUNE.		
Date.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.
1	6 37	5 30	10.9	6 37	5 50	11.2	6 20	6 05	11.7	5 53	6 15	12.4	5 29	6 25	12.9	5 17	6 38	13.3	5 17	6 38	13.3
2	38	31	.9	37	51	.2	20	05	.8	52	15	.4	29	25	.9	17	38	.3	17	38	.3
3	38	32	.9	37	52	.3	19	06	.8	51	15	.4	28	25	.9	17	38	.3	17	38	.3
4	38	32	.9	36	52	.3	18	06	.8	50	16	.4	28	26	13.0	17	39	.4	17	39	.4
5	39	33	.9	36	53	.3	17	06	.8	49	16	.4	27	26	.0	17	39	.4	17	39	.4
6	39	33	.9	35	53	.3	16	07	.8	48	16	.5	26	27	.0	17	40	.4	17	40	.4
7	39	34	.9	35	54	.3	15	07	.9	48	17	.5	26	27	.0	17	40	.4	17	40	.4
8	39	35	.9	34	54	.3	14	07	.9	47	17	.5	25	28	.0	17	40	.4	17	40	.4
9	39	35	.9	34	55	.4	14	08	.9	46	17	.5	25	28	.1	18	40	.4	18	40	.4
10	39	36	.9	33	56	.4	13	08	.9	45	17	.5	24	28	.1	18	41	.4	18	41	.4
11	40	37	11.0	33	56	.4	12	08	.9	44	18	.6	24	29	.1	18	41	.4	18	41	.4
12	40	37	.0	32	57	.4	11	09	12.0	43	18	.6	23	29	.1	18	42	.4	18	42	.4
13	40	38	.0	31	57	.4	10	09	.0	43	18	.6	23	30	.1	18	42	.4	18	42	.4
14	40	39	.0	31	58	.4	10	09	.0	42	19	.6	23	30	.1	18	42	.4	18	42	.4
15	40	40	.0	30	58	.5	09	09	.0	41	19	.6	22	30	.1	18	42	.4	18	42	.4
16	40	40	.0	30	59	.5	08	10	.0	40	19	.7	22	31	.1	18	43	.4	18	43	.4
17	40	41	.0	29	59	.5	07	10	.1	39	20	.7	21	31	.2	19	43	.4	19	43	.4
18	40	42	.0	28	00	.5	06	10	.1	38	20	.7	21	31	.2	19	43	.4	19	43	.4
19	40	42	.0	28	00	.5	05	11	.1	38	20	.7	21	32	.2	19	43	.4	19	43	.4
20	40	43	.1	27	01	.6	04	11	.1	37	21	.7	20	32	.2	19	43	.4	19	43	.4
21	40	44	.1	26	01	.6	03	11	.1	36	21	.7	20	33	.2	19	44	.4	19	44	.4
22	39	44	.1	26	02	.6	02	12	.2	35	21	.8	20	33	.2	20	44	.4	20	44	.4
23	39	45	.1	25	02	.6	01	12	.2	35	22	.8	19	34	.2	20	44	.4	20	44	.4
24	39	46	.1	24	03	.6	00	12	.2	34	22	.8	19	34	.3	20	44	.4	20	44	.4
25	39	46	.1	23	03	.7	59	13	.2	33	22	.8	19	35	.3	20	44	.4	20	44	.4
26	39	47	.1	23	03	.7	58	13	.2	33	23	.8	19	35	.3	20	45	.4	20	45	.4
27	39	47	.1	22	04	.7	58	13	.3	32	23	.8	18	35	.3	21	45	.4	21	45	.4
28	38	48	.2	21	04	.7	57	13	.3	31	23	.9	18	36	.3	21	45	.4	21	45	.4
29	38	49	.2	20	05	.7	56	14	.3	31	24	.9	18	36	.3	21	45	.4	21	45	.4
30	38	49	.2	20	05	.7	55	14	.3	30	24	.9	18	37	.3	22	45	.4	22	45	.4
31	38	50	.2	20	05	.7	54	14	.3	31	24	.9	18	37	.3	22	45	.4	22	45	.4
Total.....			341.6	{ 28 d 29 d }			320.9 332.6			373.2			379.2			407.3			401.7		

LATITUDE 21° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

Date.	JULY.			AUGUST.			SEPTEMBER.			Date.	OCTOBER.			NOVEMBER.			DECEMBER.		
	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.		Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.
	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.		Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.
1	5 22	6 45	13.4	5 34	6 39	13.1	5 43	6 16	12.6	1	5 51	5 48	12.0	6 03	5 24	11.4	6 21	5 18	10.9
2	5 22	6 45	.4	5 34	6 38	.1	5 44	6 15	.5	2	5 51	5 47	11.9	6 04	5 24	.3	6 21	5 18	.9
3	5 23	6 45	.4	5 34	6 38	.1	5 44	6 14	.5	3	5 52	5 46	.9	6 04	5 23	.3	6 22	5 18	.9
4	5 23	6 45	.4	5 35	6 37	.0	5 44	6 14	.5	4	5 52	5 46	.9	6 05	5 23	.3	6 23	5 18	.9
5	5 23	6 46	.4	5 35	6 37	.0	5 44	6 13	.5	5	5 52	5 45	.9	6 05	5 22	.3	6 23	5 18	.9
6	5 23	6 46	.4	5 36	6 36	.0	5 45	6 12	.5	6	5 52	5 44	.9	6 06	5 22	.3	6 24	5 18	.9
7	5 24	6 46	.4	5 36	6 35	.0	5 45	6 11	.4	7	5 53	5 43	.8	6 06	5 21	.3	6 25	5 19	.9
8	5 24	6 46	.4	5 36	6 35	.0	5 45	6 10	.4	8	5 53	5 42	.8	6 07	5 21	.2	6 25	5 19	.9
9	5 24	6 46	.3	5 37	6 34	.0	5 45	6 09	.4	9	5 54	5 41	.8	6 07	5 21	.2	6 26	5 19	.9
10	5 25	6 45	.3	5 37	6 33	12.9	5 46	6 08	.4	10	5 54	5 40	.8	6 08	5 20	.2	6 26	5 20	.9
11	5 25	6 45	.3	5 37	6 33	.9	5 46	6 07	.4	11	5 54	5 39	.8	6 08	5 20	.2	6 27	5 20	.9
12	5 26	6 45	.3	5 38	6 32	.9	5 46	6 06	.3	12	5 54	5 39	.7	6 09	5 20	.2	6 28	5 20	.9
13	5 26	6 45	.3	5 38	6 31	.9	5 46	6 05	.3	13	5 55	5 38	.7	6 10	5 19	.2	6 28	5 21	.9
14	5 27	6 45	.3	5 38	6 31	.9	5 47	6 04	.3	14	5 55	5 37	.7	6 10	5 19	.1	6 29	5 21	.9
15	5 27	6 44	.3	5 39	6 30	.9	5 47	6 03	.3	15	5 55	5 36	.7	6 11	5 19	.1	6 29	5 21	.9
16	5 27	6 44	.3	5 39	6 29	.8	5 47	6 02	.2	16	5 56	5 35	.7	6 11	5 19	.1	6 30	5 22	.9
17	5 28	6 44	.3	5 39	6 28	.8	5 47	6 01	.2	17	5 56	5 35	.6	6 12	5 18	.1	6 31	5 22	.9
18	5 28	6 44	.3	5 40	6 28	.8	5 48	6 00	.2	18	5 57	5 34	.6	6 12	5 18	.1	6 31	5 23	.9
19	5 29	6 44	.3	5 40	6 27	.8	5 48	6 00	.2	19	5 57	5 33	.6	6 13	5 18	.1	6 32	5 23	.9
20	5 29	6 43	.2	5 40	6 26	.8	5 48	5 59	.2	20	5 57	5 32	.6	6 14	5 18	.1	6 32	5 23	.9
21	5 29	6 43	.2	5 40	6 26	.8	5 49	5 57	.2	21	5 58	5 32	.6	6 14	5 18	.1	6 33	5 24	.9
22	5 30	6 43	.2	5 41	6 25	.7	5 49	5 56	.1	22	5 58	5 31	.5	6 15	5 18	.1	6 33	5 24	.9
23	5 30	6 42	.2	5 41	6 24	.7	5 49	5 56	.1	23	5 59	5 30	.5	6 15	5 18	.0	6 34	5 25	.9
24	5 31	6 42	.2	5 41	6 23	.7	5 49	5 55	.1	24	5 59	5 30	.5	6 16	5 18	.0	6 34	5 26	.9
25	5 31	6 42	.2	5 42	6 22	.7	5 50	5 54	.1	25	5 59	5 29	.5	6 17	5 18	.0	6 35	5 26	.9
26	5 31	6 41	.2	5 42	6 21	.7	5 50	5 53	.0	26	6 00	5 28	.5	6 17	5 18	.0	6 35	5 27	.9
27	5 32	6 41	.1	5 42	6 21	.6	5 50	5 52	.0	27	6 00	5 28	.5	6 18	5 17	.0	6 35	5 27	.9
28	5 32	6 40	.1	5 42	6 20	.6	5 50	5 51	.0	28	6 01	5 27	.4	6 19	5 17	.0	6 36	5 28	.9
29	5 33	6 40	.1	5 43	6 19	.6	5 51	5 50	.0	29	6 01	5 26	.4	6 20	5 17	.0	6 36	5 28	.9
30	5 33	6 39	.1	5 43	6 18	.6	5 51	5 49	.0	30	6 02	5 26	.4	6 20	5 18	.0	6 36	5 29	.9
31	5 33	6 39	.1	5 43	6 17	.6	5 51	5 49	.0	31	6 02	5 25	.4	6 20	5 18	.0	6 37	5 30	.9
Total	411.4	398.0		367.9	361.6		334.3	337.9											

Total for the year, 4435.0. Total for leap year, 4446.7

LATITUDE 22° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

Date.	JANUARY.			FEBRUARY.			MARCH.			Date.	APRIL.			MAY.			JUNE.		
	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.		Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.
	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.		Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.
1	6 39	5 28	10.8	6 38	5 49	11.2	6 21	6 04	11.7	1	5 53	6 15	12.4	5 28	6 26	13.0	5 16	6 40	13.4
2	40	29	.8	38	50	.2	20	04	.7	2	52	15	.4	27	26	.0	15	40	.4
3	40	30	.8	38	50	.2	19	05	.8	3	51	16	.4	27	27	.0	15	40	.4
4	40	30	.8	37	51	.2	18	05	.8	4	50	16	.4	26	27	.0	15	41	.4
5	41	31	.8	37	51	.2	18	06	.8	5	49	16	.5	26	28	.0	15	41	.4
6	41	32	.9	36	52	.3	17	06	.8	6	48	17	.5	25	28	.1	15	42	.4
7	41	32	.9	36	53	.3	16	06	.8	7	47	17	.5	24	29	.1	15	42	.4
8	41	33	.9	36	53	.3	15	07	.9	8	46	17	.5	24	29	.1	15	42	.5
9	41	34	.9	35	54	.3	14	07	.9	9	45	18	.5	23	29	.1	15	43	.5
10	41	34	.9	34	55	.3	13	08	.9	10	44	18	.6	23	30	.1	15	43	.5
11	41	35	.9	34	55	.4	12	08	.9	11	44	18	.6	22	30	.1	16	43	.5
12	42	36	.9	33	56	.4	11	08	.9	12	43	19	.6	22	31	.1	16	44	.5
13	42	36	.9	32	56	.4	11	09	12.0	13	42	19	.6	21	31	.2	16	44	.5
14	42	37	.9	32	57	.4	10	09	.0	14	41	20	.6	21	31	.2	16	44	.5
15	42	38	.9	31	57	.4	09	09	.0	15	40	20	.7	20	32	.2	16	44	.5
16	42	39	11.0	31	58	.5	08	10	.0	16	39	20	.7	20	32	.2	16	45	.5
17	42	39	.0	30	58	.5	07	10	.1	17	38	21	.7	20	33	.2	16	45	.5
18	41	40	.0	29	59	.5	06	10	.1	18	38	21	.7	19	33	.2	17	45	.5
19	41	41	.0	29	59	.5	05	11	.1	19	37	21	.7	19	34	.2	17	45	.5
20	41	41	.0	28	00	.5	04	11	.1	20	36	22	.8	18	34	.3	17	46	.5
21	41	42	.0	27	00	.6	03	11	.1	21	35	22	.8	18	35	.3	17	46	.5
22	41	43	.0	26	01	.6	02	12	.2	22	34	22	.8	18	35	.3	18	46	.5
23	41	43	.0	26	01	.6	01	12	.2	23	34	23	.8	18	36	.3	18	46	.5
24	41	44	.1	25	02	.6	00	12	.2	24	33	23	.8	17	36	.3	18	46	.5
25	41	45	.1	24	02	.6	5	13	.2	25	32	24	.9	17	36	.3	18	47	.5
26	40	45	.1	23	03	.7	58	13	.2	26	31	24	.9	17	37	.3	18	47	.5
27	40	46	.1	23	03	.7	57	13	.3	27	31	24	.9	17	37	.3	19	47	.5
28	40	47	.1	22	04	.7	56	14	.3	28	30	25	.9	16	38	.4	19	47	.5
29	40	47	.1	21	04	.7	56	14	.3	29	29	25	.9	16	38	.4	19	47	.5
30	39	48	.1	21	04	.7	55	14	.3	30	29	26	.9	16	39	.4	19	47	.5
31	39	48	.2	20	04	.7	54	15	.4	31	29	26	.9	16	39	.4	19	47	.5
Total..			339.9	{ 28 d 29 d		320.1 331.8			373.0				380.0			409.1			404.3

LATITUDE 22° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

JULY.			AUGUST.			SEPTEMBER.			OCTOBER.			NOVEMBER.			DECEMBER.		
Date.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.
	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.
1	5 20	6 47	13.5	5 32	6 40	13.1	5 43	6 17	5 51	5 48	12.0	6 04	5 23	11.3	6 23	5 16	10.9
2	5 20	6 48	.5	5 33	6 40	.1	5 43	6 16	5 52	5 47	11.9	6 05	5 23	.3	6 23	5 16	.9
3	5 20	6 48	.4	5 33	6 39	.1	5 43	6 15	5 52	5 46	.9	6 05	5 22	.3	6 24	5 16	.9
4	5 21	6 48	.4	5 33	6 39	.1	5 44	6 14	5 52	5 45	.9	6 06	5 22	.3	6 25	5 16	.9
5	5 21	6 48	.4	5 34	6 38	.1	5 44	6 13	5 52	5 44	.9	6 06	5 21	.2	6 25	5 16	.9
6	5 21	6 48	.4	5 34	6 37	.1	5 44	6 12	5 53	5 43	.8	6 07	5 21	.2	6 26	5 16	.8
7	5 22	6 48	.4	5 34	6 37	.0	5 44	6 11	5 53	5 42	.8	6 07	5 20	.2	6 27	5 17	.8
8	5 22	6 48	.4	5 35	6 36	.0	5 45	6 10	5 54	5 41	.8	6 08	5 20	.2	6 27	5 17	.8
9	5 22	6 48	.4	5 35	6 35	.0	5 45	6 10	5 54	5 40	.8	6 09	5 19	.2	6 28	5 17	.8
10	5 23	6 47	.4	5 36	6 35	.0	5 45	6 08	5 54	5 40	.8	6 09	5 19	.2	6 28	5 18	.8
11	5 23	6 47	.4	5 36	6 34	.0	5 46	6 07	5 55	5 39	.7	6 10	5 19	.1	6 29	5 18	.8
12	5 24	6 47	.4	5 36	6 33	12.9	5 46	6 06	5 55	5 38	.7	6 10	5 18	.1	6 30	5 18	.8
13	5 24	6 47	.4	5 37	6 33	.9	5 46	6 05	5 56	5 37	.7	6 11	5 18	.1	6 30	5 19	.8
14	5 25	6 47	.4	5 37	6 32	.9	5 46	6 05	5 56	5 36	.7	6 12	5 18	.1	6 31	5 19	.8
15	5 25	6 46	.4	5 37	6 31	.9	5 47	6 04	5 56	5 36	.7	6 12	5 17	.1	6 31	5 19	.8
16	5 25	6 46	.3	5 38	6 30	.9	5 47	6 03	5 57	5 35	.6	6 13	5 17	.1	6 32	5 20	.8
17	5 26	6 46	.3	5 38	6 30	.9	5 47	6 02	5 57	5 34	.6	6 13	5 17	.1	6 33	5 20	.8
18	5 26	6 46	.3	5 38	6 29	.8	5 47	6 01	5 57	5 33	.6	6 14	5 17	.0	6 33	5 21	.8
19	5 27	6 46	.3	5 39	6 28	.8	5 48	6 00	5 58	5 32	.6	6 15	5 16	.0	6 34	5 21	.8
20	5 27	6 45	.3	5 39	6 27	.8	5 48	5 59	5 58	5 31	.6	6 15	5 16	.0	6 34	5 21	.8
21	5 27	6 45	.3	5 39	6 27	.8	5 48	5 58	5 59	5 31	.5	6 16	5 16	.0	6 35	5 22	.8
22	5 28	6 44	.3	5 40	6 26	.8	5 49	5 56	5 59	5 30	.5	6 17	5 16	.0	6 35	5 23	.8
23	5 29	6 44	.3	5 40	6 25	.7	5 49	5 56	6	5 29	.5	6 17	5 16	.0	6 36	5 23	.8
24	5 29	6 44	.2	5 40	6 24	.7	5 49	5 55	6	5 29	.5	6 18	5 16	.0	6 36	5 24	.8
25	5 29	6 43	.2	5 41	6 23	.7	5 50	5 54	6	5 28	.5	6 18	5 16	.0	6 37	5 24	.8
26	5 30	6 43	.2	5 41	6 22	.7	5 50	5 53	6	5 27	.4	6 19	5 16	10.9	6 37	5 25	.8
27	5 30	6 42	.2	5 41	6 22	.7	5 50	5 52	6	5 26	.4	6 20	5 16	.9	6 37	5 25	.8
28	5 31	6 42	.2	5 42	6 21	.7	5 50	5 51	6	5 26	.4	6 21	5 16	.9	6 38	5 26	.8
29	5 31	6 41	.2	5 42	6 20	.6	5 51	5 50	6	5 25	.4	6 21	5 16	.9	6 38	5 26	.8
30	5 31	6 41	.2	5 42	6 19	.6	5 51	5 49	6	5 25	.4	6 22	5 16	.9	6 38	5 27	.8
31	5 32	6 41	.1	5 42	6 18	.6	5 51	5 49	6	5 24	.3	6 22	5 16	.9	6 39	5 28	.8
Total..			413.1			399.0					360.6			332.6			335.3

Total for the year, 4435.5, Total for leap year, 4447.2

LATITUDE 23° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

Date.	JANUARY.			FEBRUARY.			MARCH.			Date.	APRIL.			MAY.			JUNE.		
	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.		Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.
1	Hrs. min. 6 41	Hrs. min. 5 26	Hrs. 10.8	Hrs. min. 6 40	Hrs. min. 5 48	Hrs. 11.1	Hrs. min. 6 22	Hrs. min. 6 03	Hrs. 11.7	1	Hrs. min. 5 52	Hrs. min. 6 16	Hrs. 12.4	Hrs. min. 5 27	Hrs. min. 6 27	Hrs. 13.0	Hrs. min. 5 14	Hrs. min. 6 42	Hrs. 13.5
2	42	27	.8	39	48	.1	21	04	.7	2	51	16	.4	26	28	.0	14	42	.5
3	42	28	.8	39	49	.2	20	04	.7	3	50	16	.4	26	28	.0	13	42	.5
4	42	28	.8	39	50	.2	19	05	.8	4	49	17	.5	25	29	.1	13	43	.5
5	43	29	.8	38	50	.2	18	05	.8	5	48	17	.5	24	29	.1	13	43	.5
6	43	30	.8	38	51	.2	17	06	.8	6	47	17	.5	23	30	.1	13	44	.5
7	43	30	.8	37	52	.2	16	06	.8	7	46	18	.5	23	30	.1	13	44	.5
8	43	31	.8	37	52	.3	15	06	.9	8	46	18	.5	22	31	.1	13	44	.5
9	43	32	.8	36	53	.3	14	07	.9	9	45	18	.6	22	31	.2	13	45	.5
10	43	32	.8	36	53	.3	14	07	.9	10	44	19	.6	21	31	.2	13	45	.5
11	43	33	.8	35	54	.3	13	08	.9	11	43	19	.6	21	32	.2	13	45	.5
12	43	34	.8	34	55	.3	12	08	.9	12	42	20	.6	20	32	.2	14	46	.5
13	44	34	.8	34	55	.4	11	08	12.0	13	41	20	.6	20	33	.2	14	46	.5
14	43	35	.9	33	56	.4	10	09	.0	14	40	20	.7	19	33	.2	14	46	.5
15	43	36	.9	32	56	.4	09	09	.0	15	40	21	.7	19	34	.2	14	46	.5
16	43	37	.9	32	57	.4	08	10	.0	16	39	21	.7	18	34	.3	14	47	.5
17	43	38	.9	31	57	.4	07	10	.0	17	37	22	.7	18	34	.3	14	47	.5
18	43	38	.9	30	58	.5	06	10	.1	18	37	22	.8	18	35	.3	15	47	.5
19	43	39	.9	29	59	.5	05	11	.1	19	36	22	.8	17	36	.3	15	47	.5
20	43	40	.9	29	59	.5	04	11	.1	20	35	23	.8	17	36	.3	15	48	.5
21	43	40	11.0	28	59	.5	03	11	.1	21	34	23	.8	16	37	.3	15	48	.5
22	43	41	.0	27	00	.5	02	12	.2	22	33	23	.8	16	37	.4	15	48	.5
23	42	42	.0	26	00	.6	01	12	.2	23	32	24	.9	16	37	.4	16	48	.5
24	42	42	.0	26	01	.6	00	13	.2	24	32	24	.9	15	38	.4	16	48	.5
25	42	43	.0	25	02	.6	5	13	.2	25	31	25	.9	15	38	.4	16	49	.5
26	42	44	.0	24	02	.6	58	13	.3	26	30	25	.9	15	39	.4	16	49	.5
27	42	44	.0	23	02	.6	57	14	.3	27	30	26	.9	15	39	.4	16	49	.5
28	41	45	.1	23	03	.7	56	14	.3	28	29	26	13.0	14	40	.4	17	49	.5
29	41	46	.1	22	03	.7	55	14	.3	29	28	26	.0	14	40	.4	17	49	.5
30	41	46	.1	-----	-----	-----	54	15	.3	30	27	27	.0	14	41	.4	17	49	.5
31	40	47	.1	-----	-----	-----	53	15	.4	31	-----	-----	-----	14	41	.5	-----	-----	-----
Total.....	-----	-----	338.1	-----	28 d 29 d	318.9 330.6	-----	-----	372.9	-----	-----	-----	381.0	-----	-----	410.8	-----	-----	405.0

LATITUDE 23° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

Date	JULY.			AUGUST.			SEPTEMBER.			OCTOBER.			NOVEMBER.			DECEMBER.		
	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.
	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.
1	5 18	6 50	13.5	5 31	6 42	13.2	5 42	6 18	12.6	5 51	6 48	11.9	6 05	5 22	11.3	6 25	5 14	10.8
2	5 18	6 50	.5	5 31	6 41	.2	5 42	6 17	.6	5 52	6 47	.9	6 06	5 21	.3	6 25	5 14	.8
3	5 18	6 50	.5	5 31	6 41	.2	5 43	6 16	.6	5 52	6 46	.9	6 06	5 21	.2	6 26	5 14	.8
4	5 19	6 50	.5	5 32	6 40	.1	5 43	6 15	.5	5 53	6 45	.9	6 07	5 20	.2	6 27	5 14	.8
5	5 19	6 50	.5	5 32	6 39	.1	5 43	6 14	.5	5 53	6 44	.8	6 08	5 20	.2	6 27	5 14	.8
6	5 19	6 50	.5	5 33	6 39	.1	5 44	6 13	.5	5 53	6 43	.8	6 08	5 19	.2	6 28	5 15	.8
7	5 20	6 50	.5	5 33	6 38	.1	5 44	6 12	.5	5 54	6 42	.8	6 09	5 19	.2	6 29	5 15	.8
8	5 20	6 50	.5	5 33	6 37	.1	5 44	6 11	.4	5 54	6 41	.8	6 09	5 18	.1	6 29	5 15	.8
9	5 20	6 50	.5	5 34	6 37	.0	5 44	6 10	.4	5 55	6 40	.8	6 10	5 18	.1	6 30	5 15	.8
10	5 21	6 49	.5	5 34	6 36	.0	5 45	6 09	.4	5 55	6 39	.7	6 11	5 18	.1	6 30	5 16	.8
11	5 21	6 49	.5	5 35	6 35	.0	5 45	6 08	.4	5 55	6 38	.7	6 11	5 17	.1	6 31	5 16	.7
12	5 22	6 49	.5	5 35	6 35	.0	5 46	6 07	.4	5 56	6 37	.7	6 12	5 17	.1	6 32	5 16	.7
13	5 22	6 49	.4	5 35	6 34	.0	5 46	6 06	.3	5 56	6 36	.7	6 12	5 16	.1	6 32	5 17	.7
14	5 23	6 49	.4	5 36	6 33	.0	5 46	6 05	.3	5 56	6 36	.6	6 13	5 16	.0	6 33	5 17	.7
15	5 23	6 48	.4	5 36	6 32	12.9	5 46	6 04	.3	5 57	6 35	.6	6 14	5 16	.0	6 33	5 17	.7
16	5 23	6 48	.4	5 37	6 32	.9	5 47	6 03	.3	5 57	6 34	.6	6 14	5 15	.0	6 34	5 18	.7
17	5 24	6 48	.4	5 37	6 31	.9	5 47	6 02	.2	5 58	6 33	.6	6 15	5 15	.0	6 35	5 18	.7
18	5 24	6 48	.4	5 37	6 30	.9	5 47	6 01	.2	5 58	6 32	.6	6 16	5 15	.0	6 35	5 19	.7
19	5 25	6 47	.4	5 38	6 29	.9	5 48	6 00	.2	5 59	6 31	.5	6 16	5 15	.0	6 36	5 19	.7
20	5 25	6 47	.4	5 38	6 28	.8	5 48	5 59	.2	5 59	6 31	.5	6 17	5 15	.0	6 36	5 19	.7
21	5 26	6 47	.4	5 38	6 28	.8	5 48	5 58	.2	6 00	6 30	.5	6 18	5 14	10.9	6 37	5 20	.7
22	5 26	6 46	.3	5 39	6 27	.8	5 49	5 57	.1	6 00	6 29	.5	6 18	5 14	.9	6 37	5 21	.7
23	5 27	6 46	.3	5 39	6 26	.8	5 49	5 56	.1	6 00	6 28	.5	6 19	5 14	.9	6 38	5 21	.7
24	5 27	6 45	.3	5 39	6 25	.8	5 49	5 55	.1	6 01	6 28	.4	6 20	5 14	.9	6 38	5 22	.7
25	5 28	6 45	.3	5 40	6 24	.7	5 50	5 54	.1	6 01	6 27	.4	6 20	5 14	.9	6 39	5 22	.7
26	5 28	6 45	.3	5 40	6 23	.7	5 50	5 53	.0	6 02	6 26	.4	6 21	5 14	.9	6 39	5 23	.7
27	5 28	6 44	.3	5 40	6 22	.7	5 50	5 52	.0	6 02	6 25	.4	6 22	5 14	.9	6 39	5 23	.7
28	5 29	6 44	.2	5 41	6 21	.7	5 51	5 51	.0	6 03	6 25	.4	6 22	5 14	.9	6 40	5 24	.7
29	5 29	6 43	.2	5 41	6 21	.7	5 51	5 50	.0	6 03	6 24	.3	6 23	5 14	.8	6 40	5 24	.7
30	5 30	6 43	.2	5 41	6 20	.6	5 51	49	.0	6 04	6 23	.3	6 24	5 14	.8	6 40	5 25	.7
31	5 30	6 42	.2	5 42	6 19	.6	5 51	49	.....	6 05	6 22	.3	6 24	5 14	.....	6 41	5 26	.7
Total.....	.....	.....	415.2	.....	.....	400.3	.....	.....	368.4	.....	.....	359.8	.....	.....	331.0	.....	.....	332.7

Total for the year, 4434.1. Total for leap year, 4445.8

LATITUDE 24° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

Date.	JANUARY.			FEBRUARY.			MARCH.			Date.	APRIL.			MAY.			JUNE.		
	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.		Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.
	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.		Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.
1	6 43	5 24	10.7	6 41	5 47	11.1	6 22	6 03	11.7	1	5 52	6 16	12.4	5 25	6 29	13.1	5 12	6 43	13.5
2	44	25	.7	41	47	.1	21	03	.7	2	51	16	.4	25	29	.1	12	44	.5
3	44	26	.7	40	48	.1	20	04	.7	3	50	17	.5	24	30	.1	11	44	.6
4	44	26	.7	40	48	.1	19	04	.7	4	49	17	.5	23	30	.1	11	45	.6
5	45	27	.7	39	49	.2	18	05	.8	5	48	18	.5	23	31	.1	11	45	.6
6	45	28	.7	39	50	.2	18	05	.8	6	47	18	.5	22	31	.2	11	46	.6
7	45	28	.7	38	50	.2	17	06	.8	7	46	18	.5	21	31	.2	11	46	.6
8	45	29	.7	38	51	.2	16	06	.8	8	45	19	.6	21	32	.2	11	46	.6
9	45	30	.7	37	51	.2	15	06	.9	9	44	19	.6	20	32	.2	11	47	.6
10	45	30	.8	37	52	.3	14	07	.9	10	43	19	.6	20	33	.2	11	47	.6
11	45	31	.8	36	53	.3	13	07	.9	11	42	20	.6	19	33	.2	11	48	.6
12	45	32	.8	35	54	.3	12	08	.9	12	41	20	.7	19	34	.2	11	48	.6
13	45	33	.8	35	54	.3	11	08	12.0	13	40	21	.7	18	34	.3	12	48	.6
14	45	33	.8	34	55	.3	10	09	.0	14	40	21	.7	18	35	.3	12	48	.6
15	45	34	.8	33	55	.4	09	09	.0	15	39	22	.7	17	35	.3	12	49	.6
16	45	35	.8	33	56	.4	08	09	.0	16	38	22	.7	17	36	.3	12	49	.6
17	45	36	.8	32	56	.4	07	10	.0	17	36	22	.8	16	36	.3	12	49	.6
18	45	37	.9	31	57	.4	06	10	.1	18	36	23	.8	16	37	.3	12	49	.6
19	45	37	.9	30	58	.5	05	11	.1	19	35	23	.8	15	37	.4	13	50	.6
20	45	38	.9	30	58	.5	04	11	.1	20	34	24	.8	15	38	.4	13	50	.6
21	45	39	.9	29	58	.5	03	11	.1	21	33	24	.8	14	38	.4	13	50	.6
22	44	39	.9	28	59	.5	02	12	.2	22	32	25	.9	14	39	.4	13	50	.6
23	44	40	.9	27	6	.5	01	12	.2	23	31	25	.9	14	39	.4	14	50	.6
24	44	41	11.0	26	00	.6	00	13	.2	24	31	25	.9	14	40	.4	14	51	.6
25	44	41	.0	26	01	.6	5	13	.2	25	30	26	.9	13	40	.5	14	51	.6
26	43	42	.0	25	01	.6	58	14	.2	26	29	26	.9	13	41	.5	14	51	.6
27	43	43	.0	24	02	.6	57	14	.3	27	28	27	13.0	13	41	.5	14	51	.6
28	43	44	.0	23	02	.6	56	14	.3	28	28	27	.0	13	42	.5	15	51	.6
29	43	44	.0	22	03	.7	55	15	.3	29	27	28	.0	12	42	.5	15	51	.6
30	42	45	.0	22	03	.7	54	15	.4	30	26	28	.0	12	43	.5	15	52	.6
31	42	46	.1	22	03	.7	53	15	.4	31	26	28	.0	12	43	.5	15	52	.6
Total	336.2	28 d 29 d	336.2	318.0 329.7	28 d 29 d	318.0 329.7	372.8	381.7	412.6	407.8	381.7	412.6	407.8	381.7	412.6	407.8	381.7	412.6	407.8

LATITUDE 24° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

JULY.			AUGUST.			SEPTEMBER.			OCTOBER.			NOVEMBER.			DECEMBER.		
Date.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.
	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.
1	5 16	6 52	13.6	5 29	6 44	13.2	5 41	6 18	12.6	5 52	5 47	11.9	6 07	5 21	11.2	6 26	5 12
2	16	52	.6	30	43	.2	42	17	.6	52	46	.9	07	20	.2	27	12
3	16	52	.6	30	42	.2	42	16	.6	53	45	.9	08	20	.2	28	12
4	17	52	.6	30	41	.2	43	15	.5	53	44	.9	08	19	.2	28	12
5	17	52	.6	31	41	.2	43	14	.5	53	44	.8	09	19	.2	29	13
6	17	52	.6	31	40	.2	43	13	.5	54	42	.8	10	18	.1	30	13
7	18	52	.6	32	40	.1	43	12	.5	54	41	.8	10	18	.1	31	13
8	18	52	.6	32	39	.1	44	11	.5	55	40	.8	11	17	.1	31	13
9	18	52	.6	32	38	.1	44	10	.4	55	39	.7	11	17	.1	32	13
10	19	51	.5	33	37	.1	44	09	.4	56	38	.7	12	16	.1	32	14
11	19	51	.5	33	37	.1	45	08	.4	56	38	.7	13	16	.0	33	14
12	20	51	.5	34	36	.0	45	07	.4	56	37	.7	13	15	.0	34	14
13	20	51	.5	34	35	.0	46	06	.3	57	36	.6	14	15	.0	34	15
14	21	50	.5	35	34	.0	46	06	.3	57	35	.6	15	14	.0	35	15
15	21	50	.5	35	34	.0	46	05	.3	58	34	.6	15	14	.0	35	15
16	22	50	.5	36	33	.0	46	03	.3	58	33	.6	16	14	.0	36	16
17	22	50	.5	36	32	12.9	47	02	.3	59	32	.6	17	14	.0	37	16
18	22	50	.4	36	31	.9	47	01	.2	59	31	.5	17	13	10.9	37	17
19	23	49	.4	36	30	.9	47	00	.2	59	31	.5	18	13	.9	38	17
20	23	49	.4	37	29	.9	48	59	.2	00	30	.5	19	13	.9	38	17
21	24	49	.4	37	29	.9	48	58	.2	00	29	.5	19	13	.9	39	18
22	24	48	.4	38	28	.8	49	57	.1	01	28	.5	20	13	.9	39	19
23	25	48	.4	38	27	.8	49	56	.1	01	27	.4	21	13	.9	40	19
24	25	47	.4	39	26	.8	49	55	.1	02	27	.4	21	12	.9	40	20
25	26	47	.4	39	25	.8	50	54	.1	02	26	.4	22	12	.8	41	20
26	26	46	.3	39	24	.8	50	53	.0	03	25	.4	23	12	.8	41	21
27	27	46	.3	40	23	.7	50	51	.0	04	24	.3	24	12	.8	41	21
28	27	45	.3	40	22	.7	51	50	.0	04	24	.3	24	12	.8	42	22
29	28	45	.3	40	21	.7	51	50	.0	04	23	.3	25	12	.8	42	22
30	28	44	.3	41	20	.7	51	48	11.9	05	22	.3	26	12	.8	42	23
31	29	44	.2	41	19	.6	.....	.....	.....	06	21	.3	.....	.....	.....	43	24
Total.....			417.3			401.6			368.5			359.2			329.6		
																	331.2

Total for the year, 4436.5. Total for leap year, 4448.2

LATITUDE 25° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

Date.	JANUARY.			FEBRUARY.			MARCH.			Date.	APRIL.			MAY.			JUNE.		
	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.		Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.
	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.		Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.
1	6 45	5 22	10.6	6 42	5 45	11.0	6 23	6 02	11.6	1	5 52	6 16	12.4	5 24	6 30	13.1	5 10	6 45	13.6
2	6 46	5 23	.6	6 42	5 46	.1	6 22	6 03	.7	2	5 50	6 17	.4	5 23	6 30	.1	5 10	6 46	.6
3	6 46	5 24	.6	6 42	5 46	.1	6 21	6 03	.7	3	5 49	6 17	.5	5 23	6 31	.1	5 09	6 46	.6
4	6 46	5 24	.6	6 41	5 47	.1	6 20	6 04	.7	4	5 48	6 18	.5	5 22	6 32	.2	5 09	6 47	.6
5	6 46	5 25	.6	6 41	5 48	.1	6 19	6 04	.8	5	5 47	6 18	.5	5 21	6 32	.2	5 09	6 47	.6
6	47	26	.7	40	48	.1	18	05	.8	6	46	18	.5	21	32	.2	09	48	.6
7	47	27	.7	40	49	.2	17	05	.8	7	45	19	.6	20	33	.2	09	48	.6
8	47	27	.7	39	50	.2	16	06	.8	8	44	19	.6	19	33	.2	09	48	.6
9	47	28	.7	39	50	.2	15	06	.8	9	44	20	.6	19	34	.3	09	49	.7
10	47	29	.7	38	51	.2	14	06	.9	10	42	20	.6	18	34	.3	09	49	.7
11	47	29	.7	37	52	.2	13	07	.9	11	41	21	.6	18	35	.3	09	50	.7
12	47	30	.7	37	52	.3	12	08	.9	12	40	21	.7	17	35	.3	09	50	.7
13	47	31	.7	36	53	.3	11	08	12.0	13	40	22	.7	16	36	.3	09	50	.7
14	47	32	.7	35	54	.3	10	09	.0	14	39	22	.7	16	36	.3	10	50	.7
15	47	32	.8	34	54	.3	09	09	.0	15	39	22	.7	15	37	.4	10	51	.7
16	47	33	.8	34	55	.4	08	09	.0	16	37	23	.8	15	37	.4	10	51	.7
17	47	34	.8	33	55	.4	07	10	.0	17	36	23	.8	14	38	.4	10	51	.7
18	47	35	.8	32	56	.4	06	10	.1	18	35	24	.8	14	38	.4	10	51	.7
19	46	36	.8	31	57	.4	05	11	.1	19	34	24	.8	14	39	.4	11	52	.7
20	46	36	.8	31	57	.4	04	11	.1	20	33	24	.9	13	40	.4	11	52	.7
21	46	37	.8	30	58	.5	03	11	.1	21	32	25	.9	13	40	.5	11	52	.7
22	46	38	.9	29	58	.5	02	12	.2	22	31	26	.9	12	41	.5	11	52	.7
23	46	38	.9	28	59	.5	01	12	.2	23	30	26	.9	12	41	.5	12	52	.7
24	46	39	.9	27	00	.5	00	13	.2	24	30	26	.9	12	42	.5	12	53	.7
25	45	40	.9	26	00	.6	5	13	.2	25	29	27	13.0	11	42	.5	12	53	.7
26	45	41	.9	25	01	.6	58	14	.3	26	28	27	.0	11	43	.5	12	53	.7
27	45	41	.9	25	01	.6	57	14	.3	27	27	28	.0	11	43	.5	12	53	.7
28	44	42	11.0	24	01	.6	56	14	.3	28	26	28	.0	11	44	.6	13	53	.7
29	44	43	.0	23	02	.6	55	15	.3	29	26	29	.1	10	44	.6	13	54	.7
30	44	44	.0	.....	.....	.....	54	15	.4	30	25	29	.1	10	45	.6	13	54	.7
31	43	44	.0	.....	.....	.....	53	16	.4	31	.....	.....	.....	10	45	.6	.....	.....	.....
Total.....	.....	.....	334.3	{ 28 d 29 d	.....	317.1 328.7	.....	.....	372.6	.....	.....	.....	382.5	.....	.....	414.4	.....	.....	410.2

LATITUDE 25° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

Date.	JULY.			AUGUST.			SEPTEMBER.			OCTOBER.			NOVEMBER.			DECEMBER.		
	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.
	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.
1	5 13	6 54	13.7	5 28	6 44	13.3	5 40	6 19	12.6	5 52	5 47	11.9	6 08	5 20	11.2	6 28	5 10	10.7
2	14	54	.7	28	44	.3	41	18	.6	53	46	.9	08	19	.2	29	10	.7
3	14	54	.7	29	43	.3	42	17	.6	53	45	.9	09	18	.2	30	10	.7
4	15	54	.6	29	43	.2	42	16	.6	53	44	.8	10	18	.1	30	10	.7
5	15	54	.6	29	42	.2	42	15	.5	54	43	.8	10	17	.1	31	11	.7
6	15	54	.6	30	42	.2	43	14	.5	54	42	.8	11	17	.1	32	11	.6
7	16	54	.6	30	41	.2	43	13	.5	55	41	.8	11	16	.1	33	11	.6
8	16	54	.6	31	40	.2	43	12	.5	55	40	.7	12	16	.1	33	11	.6
9	16	54	.6	31	40	.1	44	11	.5	56	39	.7	13	15	.0	34	11	.6
10	17	53	.6	31	39	.1	44	10	.4	56	38	.7	14	15	.0	34	12	.6
11	18	53	.6	32	38	.1	45	08	.4	56	37	.7	14	14	.0	35	12	.6
12	18	53	.6	32	37	.1	45	07	.4	57	36	.6	15	14	.0	36	12	.6
13	18	53	.6	33	36	.1	45	06	.4	58	35	.6	16	13	.0	36	13	.6
14	19	52	.6	33	36	.0	46	06	.3	58	34	.6	16	13	10.9	37	13	.6
15	19	52	.6	34	35	.0	46	05	.3	58	33	.6	17	12	.9	37	13	.6
16	20	52	.5	34	34	.0	46	04	.3	59	32	.6	18	12	.9	38	14	.6
17	20	52	.5	35	33	.0	47	02	.3	59	31	.5	18	12	.9	39	14	.6
18	21	51	.5	35	32	.0	47	01	.2	6	31	.5	19	12	.9	39	15	.6
19	21	51	.5	35	31	12.9	47	00	.2	00	30	.5	20	12	.9	40	15	.6
20	22	51	.5	36	30	.9	48	59	.2	01	29	.5	20	11	.8	40	15	.6
21	22	50	.5	36	30	.9	48	58	.2	01	28	.4	21	11	.8	41	16	.6
22	23	50	.5	37	29	.9	49	57	.1	02	27	.4	22	11	.8	41	17	.6
23	23	49	.4	37	28	.8	49	56	.1	02	26	.4	22	11	.8	42	18	.6
24	24	49	.4	38	27	.8	49	55	.1	03	26	.4	23	11	.8	42	18	.6
25	24	49	.4	38	26	.8	50	54	.1	03	25	.4	24	10	.8	43	18	.6
26	24	48	.4	38	25	.8	50	52	.0	04	24	.3	25	10	.8	43	19	.6
27	25	48	.4	39	24	.8	50	51	.0	05	23	.3	25	10	.8	43	19	.6
28	26	47	.4	39	23	.7	51	50	.0	05	23	.3	26	10	.7	44	20	.6
29	26	46	.3	39	22	.7	51	50	.0	06	22	.3	27	10	.7	44	20	.6
30	27	46	.3	40	21	.7	52	48	11.9	06	21	.2	28	10	.7	44	21	.6
31	27	45	.3	40	20	.7	.....	.....	.....	07	19	.2	.....	.....	.....	45	22	.6
Total.....	.....	.....	419.1	.....	.....	402.8	.....	.....	368.8	.....	.....	358.3	.....	.....	328.0	.....	.....	329.1

Total for the year, 4437.2. Total for leap year, 4448.8

LATITUDE 26° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

JANUARY.				FEBRUARY.				MARCH.				APRIL.				MAY.				JUNE.			
Date.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Date.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	
	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.		Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	
1	6 48	5 20	10.5	6 44	5 44	11.0	1	5 51	6 17	12.4	5 23	6 31	13.1	5 08	6 48	13.7	5 07	6 50	13.7	5 07	6 48	13.7	
2	48	21	.5	44	44	.0	2	23	02	.7	22	32	.2	08	48	.7	22	32	.2	08	48	.7	
3	48	22	.6	43	45	.0	3	22	03	.7	21	32	.2	07	49	.7	21	32	.2	07	49	.7	
4	48	22	.6	43	46	.1	4	21	03	.7	20	33	.2	07	48	.7	20	33	.2	07	49	.7	
5	49	23	.6	42	46	.1	5	20	04	.7	20	34	.2	07	47	.7	20	34	.2	07	49	.7	
6	49	24	.6	42	47	.1	6	18	04	.8	19	34	.3	07	46	.7	19	34	.3	07	50	.7	
7	49	24	.6	41	48	.1	7	18	04	.8	18	34	.3	07	45	.7	18	34	.3	07	50	.7	
8	49	25	.6	40	48	.1	8	17	05	.8	17	35	.3	07	44	.7	18	35	.3	07	51	.7	
9	49	26	.6	40	49	.2	9	16	06	.8	16	36	.3	07	43	.7	17	36	.3	07	51	.7	
10	49	26	.6	39	50	.2	10	15	06	.9	15	36	.3	07	42	.7	16	36	.3	07	51	.7	
11	49	27	.6	38	50	.2	11	14	07	.9	14	36	.3	07	41	.7	16	36	.3	07	52	.7	
12	49	28	.7	38	51	.2	12	12	07	.9	12	37	.4	07	40	.7	15	37	.4	07	52	.8	
13	49	29	.7	37	52	.2	13	11	08	.9	11	38	.4	07	39	.7	15	38	.4	07	52	.8	
14	49	30	.7	36	52	.3	14	10	08	12.0	10	38	.4	07	38	.8	14	38	.4	07	53	.8	
15	49	30	.7	36	53	.3	15	09	09	.0	09	38	.8	07	38	.8	14	39	.4	07	53	.8	
16	49	31	.7	35	54	.3	16	08	09	.0	08	36	.8	07	36	.8	13	39	.4	08	53	.8	
17	49	32	.7	34	54	.3	17	07	09	.0	07	35	.8	07	35	.8	13	40	.5	08	54	.8	
18	49	33	.7	33	55	.4	18	06	10	.1	06	34	.9	07	34	.9	12	40	.5	08	54	.8	
19	48	34	.8	32	56	.4	19	05	11	.1	05	33	.9	07	33	.9	12	41	.5	08	54	.8	
20	48	34	.8	32	56	.4	20	04	11	.1	04	32	.9	07	32	.9	11	42	.5	08	54	.8	
21	48	35	.8	31	57	.4	21	03	11	.1	03	31	.9	09	31	.9	11	42	.5	09	54	.8	
22	48	36	.8	30	57	.5	22	02	12	.2	02	30	.9	09	30	.9	10	43	.5	09	55	.8	
23	48	37	.8	29	58	.5	23	01	13	.2	01	29	13.0	09	29	.5	10	43	.5	09	55	.8	
24	47	37	.8	28	59	.5	24	5	13	.2	28	28	.0	09	28	.6	10	44	.6	09	55	.8	
25	47	38	.9	27	59	.5	25	58	14	.3	28	28	.0	09	28	.6	10	44	.6	10	55	.8	
26	47	39	.9	26	00	.6	26	57	14	.3	27	27	.0	09	27	.6	09	45	.6	10	55	.8	
27	46	40	.9	25	00	.6	27	56	14	.3	26	26	.1	09	26	.6	09	45	.6	10	56	.8	
28	46	40	.9	25	01	.6	28	55	15	.3	25	25	.1	09	25	.6	09	46	.6	10	56	.8	
29	46	41	.9	24	02	.6	29	54	15	.4	24	24	.1	08	24	.6	08	46	.6	11	56	.8	
30	45	42	.9	.....	.....	.....	30	53	16	.4	23	23	.1	08	23	.6	08	47	.6	11	56	.8
31	45	43	11.0	.....	.....	.4	31	52	16	.4	.....	.....	.....	08	.....	.6	08	47	.6	11	56	.8
Total.....	332.5	{ 28 d 29 d }	316.1 327.7	372.6	383.6	416.0	412.9

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

JULY.				AUGUST.				SEPTEMBER.				OCTOBER.				NOVEMBER.				DECEMBER.			
Sunrise.		Sunset.	Total possi-ble.	Sunrise.		Sunset.	Total possi-ble.	Sunrise.		Sunset.	Total possi-ble.	Sunrise.		Sunset.	Total possi-ble.	Sunrise.		Sunset.	Total possi-ble.	Sunrise.		Sunset.	Total possi-ble.
Hrs. min.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	
5 11	6 56	13.7	5 26	6 46	13.3	5 40	6 20	12.7	5 52	5 47	11.9	5 52	5 47	11.9	6 09	5 18	11.2	6 30	5 08	10.6	6 31	5 08	10.6
12	56	.7	26	46	.3	40	19	.6	53	46	.9	53	46	.9	10	18	.1	31	08	.6	32	08	.6
12	56	.7	27	45	.3	41	18	.6	53	45	.8	53	45	.8	10	17	.1	32	08	.6	32	08	.6
12	56	.7	27	44	.3	41	16	.6	54	44	.8	54	44	.8	11	16	.1	32	08	.6	32	08	.6
13	56	.7	28	44	.3	42	15	.6	54	43	.8	54	43	.8	12	15	.1	33	08	.6	33	08	.6
13	56	.7	28	43	.3	42	14	.5	55	42	.8	55	42	.8	12	15	.1	34	09	.6			.6
14	56	.7	28	43	.2	42	13	.5	55	40	.8	55	40	.8	13	15	.0	35	09	.6			.6
14	56	.7	29	42	.2	43	12	.5	56	39	.7	56	39	.7	14	14	.0	35	09	.5			.5
14	56	.7	30	41	.2	43	11	.5	56	38	.7	56	38	.7	14	14	.0	36	09	.5			.5
15	55	.7	30	40	.2	44	10	.4	57	37	.7	57	37	.7	15	13	.0	37	09	.5			.5
15	55	.7	30	40	.1	44	09	.4	57	36	.7	57	36	.7	15	13	10.9	37	10	.5			.5
16	55	.6	31	39	.1	44	08	.4	58	35	.6	58	35	.6	16	12	.9	38	10	.5			.5
16	55	.6	32	38	.1	45	07	.4	58	34	.6	58	34	.6	17	12	.9	38	10	.5			.5
17	55	.6	32	37	.1	45	06	.3	59	34	.6	59	34	.6	18	11	.9	39	11	.5			.5
17	54	.6	32	36	.1	46	06	.3	59	33	.6	59	33	.6	19	11	.9	40	11	.5			.5
18	54	.6	33	35	.0	46	04	.3	6 00	32	.5	6 00	32	.5	19	10	.9	40	12	.5			.5
18	54	.6	34	34	.0	46	02	.3	6 00	31	.5	6 00	31	.5	20	10	.8	41	12	.5			.5
19	53	.6	34	33	.0	47	01	.2	6 01	30	.5	6 01	30	.5	21	10	.8	41	12	.5			.5
19	53	.6	34	33	.0	47	00	.2	6 01	29	.5	6 01	29	.5	22	10	.8	42	13	.5			.5
20	53	.5	35	32	.0	48	59	.2	6 02	28	.4	6 02	28	.4	22	09	.8	43	13	.5			.5
20	52	.5	35	31	12.9	48	58	.2	6 02	27	.4	6 02	27	.4	23	09	.8	43	14	.5			.5
21	52	.5	36	30	.9	49	57	.1	6 03	26	.4	6 03	26	.4	24	09	.8	44	15	.5			.5
21	51	.5	36	29	.9	49	56	.1	6 03	25	.4	6 03	25	.4	24	09	.7	44	15	.5			.5
22	51	.5	37	28	.9	49	55	.1	6 04	25	.3	6 04	25	.3	25	09	.7	44	16	.5			.5
22	51	.5	37	27	.8	50	54	.1	6 04	24	.3	6 04	24	.3	26	09	.7	45	16	.5			.5
23	50	.5	37	26	.8	50	52	.0	6 05	23	.3	6 05	23	.3	27	08	.7	45	16	.5			.5
23	49	.4	38	25	.8	51	51	.0	6 06	22	.3	6 06	22	.3	27	08	.7	46	17	.5			.5
24	49	.4	38	24	.8	51	50	.0	6 06	21	.3	6 06	21	.3	28	08	.7	46	18	.5			.5
24	48	.4	39	23	.7	51	49	.0	6 07	21	.2	6 07	21	.2	29	08	.7	46	18	.5			.5
25	48	.4	39	22	.7	52	48	11.9	6 08	20	.2	6 08	20	.2	30	08	.6	47	19	.5			.5
31	47	.4	40	21	.7				6 08	18	.2							47	20	.5			
Total.....			421.0				404.0				369.0				357.7				326.4				326.3

Total for the year, 4438.1.

Total for leap year, 4449.7

LATITUDE 27° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

JANUARY.				FEBRUARY.				MARCH.				APRIL.				MAY.				JUNE.			
Date.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.		
1	6 50	5 18	Hrs. 10.5	6 46	5 42	Hrs. 10.9	6 24	6 01	Hrs. 11.6	5 51	6 17	Hrs. 12.4	5 21	6 33	Hrs. 13.2	5 06	6 50	Hrs. 13.7					
2	50	19	.5	45	43	11.0	23	01	.6	50	18	.5	20	33	.2	05	50	.7					
3	50	19	.5	45	43	.0	22	02	.7	48	18	.5	20	34	.2	05	51	.8					
4	50	20	.5	44	44	.0	21	03	.7	47	19	.5	19	35	.3	05	51	.8					
5	51	21	.5	44	45	.0	20	03	.7	46	19	.5	18	35	.3	05	52	.8					
6	51	22	.5	43	46	.0	19	04	.7	45	20	.6	17	36	.3	05	52	.8					
7	51	22	.5	42	46	.1	18	04	.8	44	20	.6	17	36	.3	05	52	.8					
8	51	23	.5	42	47	.1	17	05	.8	43	21	.6	16	37	.3	05	53	.8					
9	51	24	.5	41	48	.1	16	05	.8	42	21	.6	15	37	.4	05	53	.8					
10	51	24	.6	40	49	.1	15	06	.8	41	22	.7	15	38	.4	05	54	.8					
11	51	25	.6	40	49	.2	14	06	.9	40	22	.7	14	38	.4	05	54	.8					
12	51	26	.6	39	50	.2	13	07	.9	39	23	.7	14	39	.4	05	54	.8					
13	51	27	.6	38	51	.2	12	08	.9	38	23	.8	13	40	.4	05	55	.8					
14	51	28	.6	37	51	.2	10	08	12.0	37	24	.8	12	40	.5	05	55	.8					
15	51	28	.6	37	52	.3	09	09	.0	36	24	.8	12	41	.5	05	55	.8					
16	51	29	.6	36	53	.3	08	09	.0	35	25	.8	11	41	.5	05	56	.8					
17	51	30	.7	35	53	.3	07	09	.0	34	25	.9	11	42	.5	05	56	.8					
18	51	31	.7	34	54	.3	06	10	.1	33	26	.9	10	42	.5	06	56	.8					
19	50	32	.7	33	55	.4	05	11	.1	32	26	.9	10	43	.6	06	56	.8					
20	50	32	.7	32	55	.4	04	11	.1	31	27	.9	09	43	.6	06	57	.8					
21	50	33	.7	32	56	.4	03	12	.1	30	27	13.0	09	44	.6	06	57	.8					
22	50	34	.7	31	57	.4	02	12	.2	29	28	.0	08	45	.6	06	57	.8					
23	49	35	.8	30	58	.5	00	13	.2	28	29	.0	08	45	.6	07	57	.8					
24	49	36	.8	29	58	.5	5	13	.2	27	29	.0	08	46	.6	07	57	.8					
25	49	36	.8	28	59	.5	58	14	.3	26	29	.0	07	46	.7	07	58	.8					
26	48	37	.8	27	59	.5	57	14	.3	25	30	.1	07	47	.7	07	58	.8					
27	48	38	.8	26	60	.6	56	15	.3	24	30	.1	07	47	.7	08	58	.8					
28	48	39	.8	25	60	.6	55	15	.3	24	31	.1	06	48	.7	08	58	.8					
29	47	40	.9	24	61	.6	54	16	.4	23	31	.1	06	48	.7	08	58	.8					
30	47	40	.9	24	61	.6	53	16	.4	22	32	.2	06	49	.7	08	58	.8					
31	46	41	.9	23	61	.6	52	17	.4	22	32	384.3	06	49	.7	09	58	.8					
Total.....			330.4	{ 28 d 29 d }			372.3			384.3			418.1			413.8							

LATITUDE 27° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

Date.	JULY.			AUGUST.			Date.	SEPTEMBER.			OCTOBER.			NOVEMBER.			DECEMBER.		
	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.		Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.
	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.		Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.
1	5 09	6 58	13.8	5 24	6 48	13.4	1	5 53	5 47	11.9	6 10	5 17	11.1	6 33	5 06	10.6	6 33	5 06	10.6
2	5 09	6 58	.8	5 25	6 47	.4	2	5 53	5 45	.9	6 11	5 16	.1	6 33	5 06	.6	6 33	5 06	.6
3	5 10	6 58	.8	5 25	6 47	.4	3	5 54	5 44	.8	6 12	5 16	.1	6 34	5 06	.5	6 34	5 06	.5
4	5 10	6 58	.8	5 26	6 46	.3	4	5 54	5 43	.8	6 12	5 15	.0	6 35	5 06	.5	6 35	5 06	.5
5	5 10	6 58	.8	5 26	6 45	.3	5	5 55	5 42	.8	6 13	5 14	.0	6 35	5 06	.5	6 35	5 06	.5
6	5 11	6 58	.8	5 27	6 45	.3	6	5 55	5 41	.8	6 14	5 14	.0	6 36	5 06	.5	6 36	5 06	.5
7	5 12	6 58	.8	5 27	6 44	.3	7	5 56	5 40	.7	6 14	5 13	.0	6 37	5 07	.5	6 37	5 07	.5
8	5 12	6 58	.8	5 28	6 43	.3	8	5 56	5 39	.7	6 15	5 13	.0	6 38	5 07	.5	6 38	5 07	.5
9	5 12	6 58	.8	5 28	6 43	.2	9	5 57	5 38	.5	6 16	5 12	10.9	6 38	5 07	.5	6 38	5 07	.5
10	5 13	6 58	.7	5 28	6 42	.2	10	5 57	5 37	.5	6 17	5 12	.9	6 39	5 07	.5	6 39	5 07	.5
11	5 13	6 57	.7	5 29	6 41	.2	11	5 58	5 36	.4	6 17	5 11	.9	6 40	5 08	.5	6 40	5 08	.5
12	5 14	6 57	.7	5 30	6 40	.2	12	5 58	5 35	.6	6 18	5 11	.9	6 40	5 08	.5	6 40	5 08	.5
13	5 14	6 57	.7	5 30	6 39	.1	13	5 59	5 34	.6	6 19	5 10	.9	6 41	5 08	.5	6 41	5 08	.5
14	5 15	6 57	.7	5 31	6 38	.1	14	5 59	5 33	.6	6 20	5 10	.8	6 41	5 09	.5	6 41	5 09	.5
15	5 15	6 56	.7	5 31	6 37	.1	15	6 00	5 32	.5	6 20	5 09	.8	6 42	5 09	.5	6 42	5 09	.5
16	5 15	6 56	.7	5 32	6 36	.1	16	6 00	5 31	.5	6 21	5 09	.8	6 42	5 09	.5	6 42	5 09	.5
17	5 16	6 56	.7	5 32	6 36	.1	17	6 01	5 30	.5	6 22	5 09	.8	6 43	5 10	.4	6 43	5 10	.4
18	5 17	6 55	.6	5 33	6 35	.0	18	6 01	5 29	.5	6 23	5 08	.8	6 44	5 10	.4	6 44	5 10	.4
19	5 17	6 55	.6	5 33	6 34	.0	19	6 02	5 28	.4	6 23	5 08	.7	6 44	5 11	.4	6 44	5 11	.4
20	5 18	6 55	.6	5 34	6 33	.0	20	6 03	5 27	.4	6 24	5 08	.7	6 45	5 11	.4	6 45	5 11	.4
21	5 18	6 54	.6	5 34	6 32	.0	21	6 03	5 26	.4	6 25	5 07	.7	6 45	5 12	.4	6 45	5 12	.4
22	5 19	6 54	.6	5 35	6 31	12.9	22	6 04	5 25	.4	6 26	5 07	.7	6 46	5 12	.4	6 46	5 12	.4
23	5 19	6 53	.6	5 35	6 30	.9	23	6 04	5 24	.3	6 26	5 07	.7	6 46	5 13	.4	6 46	5 13	.4
24	5 20	6 53	.6	5 36	6 29	.9	24	6 05	5 24	.3	6 27	5 07	.7	6 47	5 13	.4	6 47	5 13	.4
25	5 20	6 52	.5	5 36	6 28	.9	25	6 06	5 23	.3	6 28	5 07	.6	6 47	5 14	.4	6 47	5 14	.4
26	5 21	6 52	.5	5 36	6 27	.8	26	6 06	5 22	.3	6 29	5 06	.6	6 47	5 14	.4	6 47	5 14	.4
27	5 21	6 51	.5	5 37	6 26	.8	27	6 07	5 21	.2	6 29	5 06	.6	6 48	5 15	.5	6 48	5 15	.5
28	5 22	6 51	.5	5 37	6 25	.8	28	6 07	5 20	.2	6 30	5 06	.6	6 48	5 16	.5	6 48	5 16	.5
29	5 22	6 50	.5	5 38	6 24	.8	29	6 08	5 20	.2	6 31	5 06	.6	6 48	5 16	.5	6 48	5 16	.5
30	5 23	6 49	.4	5 38	6 23	.7	30	6 09	5 18	.2	6 32	5 06	.6	6 49	5 17	.5	6 49	5 17	.5
31	5 23	6 49	.4	5 39	6 22	.7	31	6 10	5 17	.1	6 32	5 06	.6	6 49	5 17	.5	6 49	5 17	.5
Total.....			423.3			405.2				369.5			356.9			324.6			324.7

Total for the year, 4438.2. Total for leap year, 4449.8

LATITUDE 28° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

JANUARY.				FEBRUARY.				MARCH.				APRIL.				MAY.				JUNE.			
Date.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.		Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	
1	6 52	5 16	10.4	6 47	5 40	10.9	Hrs.	6 25	6 00	11.6	Hrs.	5 50	6 18	12.5	5 20	6 34	13.2	5 04	6 52	13.8	5 03	6 52	13.8
2	52	17	.4	47	41	.9	.6	24	01	.6	.6	49	18	.5	19	35	.3	03	52	.8	03	52	.8
3	52	17	.4	46	42	.9	.6	23	02	.6	.6	48	19	.5	18	36	.3	03	53	.8	03	53	.8
4	53	18	.4	46	43	11.0	.7	22	02	.7	.7	47	19	.5	17	36	.3	03	54	.8	03	54	.8
5	53	19	.4	45	43	.0	.7	20	03	.7	.6	46	20	.6	17	37	.3	03	54	.8	03	54	.8
6	53	20	.4	44	44	.0	.7	19	03	.7	.6	45	20	.6	16	37	.4	03	54	.9	03	54	.9
7	53	20	.5	44	45	.0	.8	18	04	.8	.6	43	21	.6	15	38	.4	03	55	.9	03	55	.9
8	53	21	.5	43	46	.0	.8	17	04	.8	.6	42	21	.6	14	38	.4	02	55	.9	02	55	.9
9	53	22	.5	42	46	.1	.8	16	05	.8	.7	41	22	.7	14	39	.4	02	56	.9	02	56	.9
10	53	22	.5	42	47	.1	.8	15	05	.8	.7	40	22	.7	13	39	.4	02	56	.9	02	56	.9
11	53	23	.5	41	48	.1	.9	14	06	.9	.7	39	23	.7	12	40	.5	03	56	.9	03	56	.9
12	53	24	.5	40	49	.1	.9	13	07	.9	.8	38	24	.8	12	41	.5	03	57	.9	03	57	.9
13	53	25	.5	39	50	.2	.9	12	07	.9	.8	37	24	.8	11	41	.5	03	57	.9	03	57	.9
14	53	26	.5	39	50	.2	12.0	11	08	12.0	.8	36	25	.8	11	42	.5	03	57	.9	03	57	.9
15	53	26	.6	38	51	.2	.0	10	08	.0	.8	35	25	.8	10	42	.5	03	58	.9	03	58	.9
16	53	27	.6	37	52	.2	.0	08	09	.0	.9	34	26	.9	09	43	.6	03	58	.9	03	58	.9
17	53	28	.6	36	52	.3	.0	07	09	.0	.9	33	26	.9	09	44	.6	03	58	.9	03	58	.9
18	52	29	.6	35	53	.3	.1	06	10	.1	.9	32	27	.9	08	44	.6	03	58	.9	03	58	.9
19	52	30	.6	34	54	.3	.1	05	11	.1	.9	31	27	.9	08	45	.6	03	59	.9	03	59	.9
20	52	30	.6	33	54	.4	.1	04	11	.1	13.0	30	28	.9	07	45	.6	04	59	.9	04	59	.9
21	52	31	.7	33	55	.4	.1	03	12	.1	.0	29	28	.0	07	46	.7	04	59	.9	04	59	.9
22	52	32	.7	32	56	.4	.2	02	12	.2	.0	28	29	.0	07	46	.7	04	59	.9	04	59	.9
23	51	33	.7	30	57	.4	.2	00	13	.2	.0	27	30	.0	06	47	.7	04	00	.9	04	00	.9
24	51	34	.7	30	57	.5	.2	5	13	.2	.1	26	30	.1	06	48	.7	05	00	.9	05	00	.9
25	50	35	.7	29	58	.5	.3	58	14	.3	.1	25	31	.1	05	48	.7	05	00	.9	05	00	.9
26	50	35	.8	28	58	.5	.3	57	14	.3	.1	24	31	.1	05	49	.7	05	00	.9	05	00	.9
27	50	36	.8	27	59	.5	.3	56	15	.3	.1	23	32	.1	05	49	.7	05	00	.9	05	00	.9
28	49	37	.8	26	60	.6	.4	55	16	.4	.2	22	32	.2	04	50	.8	06	00	.9	06	00	.9
29	49	38	.8	25	60	.6	.4	54	16	.4	.2	22	33	.2	04	50	.8	06	00	.9	06	00	.9
30	48	39	.8	25	60	.6	.4	52	17	.4	.2	21	33	.2	04	51	.8	06	00	.9	06	00	.9
31	48	40	.9	25	60	.9	.4	51	17	.4	.2	21	33	.2	04	51	.8	06	00	.9	06	00	.9
Total.....			328.4	{ 28 d 314.0 29 d 325.6 }			372.3	.....			385.3	.....			420.0	.....			.....			416.5	

LATITUDE 28° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

Date.	JULY.			AUGUST.			Date.	SEPTEMBER.			OCTOBER.			NOVEMBER.			DECEMBER.		
	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.		Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.
1	Hrs. min. 5 07	Hrs. min. 7 00	Hrs. 13.9	Hrs. min. 5 22	Hrs. min. 6 50	Hrs. 13.5	1	Hrs. min. 5 38	Hrs. min. 6 21	Hrs. 12.7	Hrs. min. 5 53	Hrs. min. 5 46	Hrs. 11.9	Hrs. min. 6 12	Hrs. min. 5 16	Hrs. 11.1	Hrs. min. 6 35	Hrs. min. 5 04	Hrs. 10.5
2	07	00	.9	23	49	.4	2	39	20	.7	53	45	.9	12	15	.0	35	04	.5
3	08	00	.9	24	48	.4	3	39	19	.7	54	44	.8	13	14	.0	36	04	.5
4	08	00	.9	24	48	.4	4	40	18	.6	55	43	.8	14	14	.0	37	04	.5
5	08	00	.9	25	47	.4	5	40	17	.6	55	42	.8	14	13	.0	37	04	.4
6	09	00	.9	25	46	.4	6	41	16	.6	56	41	.8	15	12	.0	38	04	.4
7	09	00	.8	25	46	.3	7	41	14	.5	56	39	.7	16	12	10.9	39	04	.4
8	10	00	.8	26	45	.3	8	42	13	.5	57	38	.7	17	11	.9	40	05	.4
9	10	00	.8	26	44	.3	9	42	12	.5	57	37	.7	17	11	.9	40	05	.4
10	11	00	.8	27	43	.3	10	43	11	.5	58	36	.6	18	10	.9	41	05	.4
11	11	59	.8	28	42	.2	11	43	10	.4	58	35	.6	19	09	.8	42	05	.4
12	12	59	.8	28	41	.2	12	44	09	.4	59	34	.6	20	09	.8	42	06	.4
13	12	59	.8	29	40	.2	13	44	08	.4	59	33	.6	20	08	.8	43	06	.4
14	12	59	.8	29	40	.2	14	44	07	.4	6	32	.5	21	08	.8	43	06	.4
15	13	58	.8	30	39	.1	15	45	06	.3	00	31	.5	22	07	.8	44	07	.4
16	13	58	.7	30	38	.1	16	45	04	.3	01	30	.5	23	07	.7	45	07	.4
17	14	58	.7	31	37	.1	17	46	03	.3	02	29	.5	23	07	.7	45	08	.4
18	15	57	.7	31	36	.1	18	46	02	.3	02	28	.4	24	07	.7	46	08	.4
19	15	57	.7	32	35	.1	19	47	01	.2	03	27	.4	25	06	.7	46	08	.4
20	16	57	.7	32	34	.0	20	47	5	.2	04	26	.4	26	06	.7	47	09	.4
21	16	56	.7	33	33	.0	21	48	58	.2	04	25	.4	27	05	.6	48	09	.4
22	17	56	.7	34	32	.0	22	48	57	.1	05	24	.3	27	05	.6	48	10	.4
23	17	55	.6	34	31	12.9	23	49	56	.1	05	23	.3	28	05	.6	48	11	.4
24	18	55	.6	34	30	.9	24	49	55	.1	06	22	.3	29	05	.6	49	11	.4
25	18	54	.6	35	29	.9	25	50	53	.1	07	22	.2	30	05	.6	49	12	.4
26	19	54	.6	35	28	.9	26	50	52	.0	07	21	.2	31	04	.6	50	12	.4
27	20	53	.6	36	27	.9	27	51	51	.0	08	20	.2	31	04	.5	50	13	.4
28	20	52	.5	36	26	.8	28	51	50	.0	09	19	.2	32	04	.5	50	13	.4
29	21	52	.5	37	25	.8	29	52	49	11.9	09	18	.2	33	04	.5	51	14	.4
30	21	51	.5	37	24	.8	30	52	48	.9	10	17	.1	34	04	.5	51	14	.4
31	22	51	.5	38	22	.7	31	.....	.....	.....	11	16	.1	.....	.....	.....	52	15	.4
Total.....			425.5	.....			.....			369.5	.....			.....			.....

LATITUDE 29° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

Date.	JANUARY.			FEBRUARY.			MARCH.			Date	APRIL.			MAY.			JUNE.		
	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.		Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.
	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.		Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.
1	6 54	5 14	10.3	6 49	5 39	10.8	6 25	6 00	11.6	1	5 50	6 18	12.5	5 18	6 36	13.3	5 01	6 54	13.9
2	54	14	.3	48	40	.9	24	00	.6	2	49	19	.5	17	36	.3	01	55	.9
3	55	15	.3	48	40	.9	23	01	.6	3	48	19	.5	17	37	.3	01	56	.9
4	55	16	.4	47	41	.9	22	02	.7	4	46	20	.6	16	38	.4	01	56	.9
5	55	17	.4	47	42	.9	21	02	.7	5	45	20	.6	15	38	.4	01	56	.9
6	55	17	.4	46	43	.9	20	03	.7	6	44	21	.6	14	39	.4	00	56	.9
7	55	18	.4	45	44	11.0	19	03	.7	7	43	21	.6	14	39	.4	00	57	.9
8	55	19	.4	44	44	.0	18	04	.8	8	42	22	.7	13	40	.4	00	57	14.0
9	55	19	.4	44	45	.0	17	04	.8	9	41	22	.7	12	40	.5	00	58	.0
10	55	20	.4	43	46	.1	16	05	.8	10	39	23	.7	11	41	.5	00	58	.0
11	55	21	.4	42	47	.1	14	06	.9	11	38	24	.8	11	42	.5	00	59	.0
12	55	22	.4	41	48	.1	13	07	.9	12	37	24	.8	10	42	.5	00	59	.0
13	55	23	.5	40	48	.1	12	07	.9	13	36	25	.8	09	43	.6	00	59	.0
14	55	24	.5	40	49	.2	11	08	.9	14	35	26	.8	09	44	.6	00	00	.0
15	55	24	.5	39	50	.2	10	08	12.0	15	34	26	.9	08	44	.6	00	00	.0
16	55	25	.5	38	50	.2	08	09	.0	16	33	27	.9	08	45	.6	01	00	.0
17	54	26	.5	37	51	.2	07	09	.0	17	32	27	.9	07	46	.6	01	01	.0
18	54	27	.5	36	52	.3	06	10	.1	18	31	28	.9	06	46	.7	01	01	.0
19	54	28	.6	35	53	.3	05	11	.1	19	30	28	13.0	06	47	.7	01	01	.0
20	54	29	.6	34	54	.3	04	11	.1	20	29	29	.0	05	47	.7	01	01	.0
21	54	29	.6	33	54	.3	03	12	.1	21	28	29	.0	05	48	.7	01	02	.0
22	53	30	.6	32	55	.4	01	12	.2	22	27	30	.1	05	48	.7	02	02	.0
23	53	31	.6	31	56	.4	00	13	.2	23	25	31	.1	04	49	.7	02	02	.0
24	53	32	.7	30	57	.4	5	14	.2	24	24	31	.1	04	50	.8	02	02	.0
25	52	33	.7	29	57	.5	58	14	.3	25	24	32	.1	03	50	.8	02	02	.0
26	52	34	.7	28	58	.5	57	15	.3	26	23	33	.2	03	51	.8	03	02	.0
27	51	35	.7	27	58	.5	56	15	.3	27	22	33	.2	03	51	.8	03	02	.0
28	51	35	.7	26	59	.5	54	16	.4	28	21	34	.2	02	52	.8	03	03	.0
29	51	36	.8	25	6 00	.6	53	16	.4	29	20	34	.2	02	53	.8	04	03	.0
30	50	37	.8	.....	.....	.....	52	17	.4	30	19	35	.3	02	53	.9	04	03	.0
31	50	38	.8	.....	.....	.....	51	18	.4	31	.....	.....	.....	02	53	.9	04	03	.0
Total..	.....	.....	326.4	.....	{ 28 d 29 d	312.9 324.5	.....	.....	372.1	.....	.....	.....	386.3	.....	.....	421.7	.....	.....	419.3

LATITUDE 29° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

JULY.				AUGUST.				SEPTEMBER.				OCTOBER.				NOVEMBER.				DECEMBER.			
Date.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.		
1	Hrs. min. 5 05	Hrs. min. 7 03	Hrs. 14.0	Hrs. min. 5 20	Hrs. min. 6 52	Hrs. 13.5	Hrs. min. 5 37	Hrs. min. 6 22	Hrs. 12.7	Hrs. min. 5 53	Hrs. min. 5 46	Hrs. 11.9	Hrs. min. 6 13	Hrs. min. 5 15	Hrs. 11.0	Hrs. min. 6 37	Hrs. min. 5 02	Hrs. 10.4	Hrs. min. 6 37	Hrs. min. 5 02	Hrs. 10.4		
2	5 05	7 03	.0	5 21	6 51	.5	5 38	6 21	.7	5 54	5 45	.8	6 14	5 14	.0	6 37	5 02	.4	6 37	5 02	.4		
3	5 05	7 03	.0	5 22	6 50	.5	5 39	6 20	.7	5 54	5 44	.8	6 14	5 13	.0	6 38	5 02	.4	6 38	5 02	.4		
4	5 06	7 03	13.9	5 22	6 49	.4	5 39	6 19	.7	5 55	5 42	.8	6 15	5 12	10.9	6 39	5 02	.4	6 39	5 02	.4		
5	5 06	7 02	.9	5 23	6 49	.4	5 40	6 18	.6	5 55	5 41	.8	6 15	5 11	.9	6 39	5 02	.4	6 39	5 02	.4		
6	7 07	7 02	.9	5 23	6 48	.4	5 40	6 16	.6	5 56	5 40	7	6 17	5 11	.9	6 40	5 02	.4	6 40	5 02	.4		
7	7 07	7 02	.9	5 24	6 47	.4	5 41	6 15	.6	5 57	5 39	.7	6 17	5 10	.9	6 41	5 02	.4	6 41	5 02	.4		
8	8 08	7 02	.9	5 24	6 46	.4	5 41	6 14	.5	5 57	5 38	.7	6 18	5 10	.9	6 42	5 03	.3	6 42	5 03	.3		
9	8 08	7 02	.9	5 25	6 46	.3	5 42	6 13	.5	5 58	5 37	.6	6 19	5 09	.8	6 43	5 03	.3	6 43	5 03	.3		
10	9 09	7 02	.9	5 26	6 45	.3	5 42	6 11	.5	5 58	5 36	.6	6 20	5 08	.8	6 43	5 03	.3	6 43	5 03	.3		
11	9 09	7 01	.9	5 26	6 44	.3	5 43	6 10	.5	5 59	5 35	.6	6 21	5 08	.8	6 44	5 03	.3	6 44	5 03	.3		
12	10 10	7 01	.9	5 27	6 43	.3	5 43	6 09	.4	5 59	5 34	.6	6 21	5 07	.8	6 44	5 03	.3	6 44	5 03	.3		
13	10 10	7 01	.8	5 28	6 42	.2	5 44	6 08	.4	6 00	5 33	.5	6 22	5 07	.8	6 45	5 04	.3	6 45	5 04	.3		
14	10 10	7 01	.8	5 28	6 41	.2	5 44	6 07	.4	6 01	5 32	.5	6 23	5 06	.7	6 46	5 04	.3	6 46	5 04	.3		
15	11 11	7 01	.8	5 29	6 40	.2	5 45	6 06	.4	6 01	5 31	.5	6 24	5 06	.7	6 46	5 05	.3	6 46	5 05	.3		
16	11 11	6 00	.8	5 29	6 39	.2	5 45	6 04	.3	6 02	5 29	.5	6 24	5 05	.7	6 47	5 05	.3	6 47	5 05	.3		
17	12 12	6 00	.8	5 30	6 38	.1	5 46	6 03	.3	6 03	5 28	.4	6 25	5 05	.7	6 47	5 05	.3	6 47	5 05	.3		
18	13 13	6 59	.8	5 30	6 37	.1	5 46	6 02	.3	6 03	5 27	.4	6 26	5 05	.6	6 48	5 06	.3	6 48	5 06	.3		
19	13 13	6 59	.8	5 31	6 36	.1	5 47	6 01	.2	6 04	5 26	.4	6 27	5 04	.6	6 49	5 06	.3	6 49	5 06	.3		
20	14 14	6 59	.7	5 31	6 35	.1	5 47	5 59	.2	6 04	5 25	.3	6 28	5 04	.6	6 49	5 07	.3	6 49	5 07	.3		
21	14 14	5 58	.7	5 32	6 34	.0	5 48	5 58	.2	6 05	5 24	.3	6 29	5 03	.6	6 50	5 07	.3	6 50	5 07	.3		
22	15 15	5 58	.7	5 32	6 33	.0	5 48	5 57	.1	6 06	5 23	.3	6 29	5 03	.6	6 50	5 08	.3	6 50	5 08	.3		
23	15 15	5 57	.7	5 33	6 32	.0	5 49	5 56	.1	6 06	5 22	.3	6 30	5 03	.5	6 51	5 08	.3	6 51	5 08	.3		
24	16 16	5 57	.7	5 33	6 31	.0	5 49	5 55	.1	6 07	5 21	.2	6 31	5 03	.5	6 51	5 09	.3	6 51	5 09	.3		
25	16 16	5 56	.7	5 34	6 30	12.9	5 50	5 53	.1	6 08	5 20	.2	6 32	5 03	.5	6 52	5 09	.3	6 52	5 09	.3		
26	17 17	5 56	.6	5 34	6 29	.9	5 50	5 52	.0	6 08	5 20	.2	6 33	5 02	.5	6 52	5 10	.3	6 52	5 10	.3		
27	18 18	5 55	.6	5 35	6 28	.9	5 51	5 51	.0	6 09	5 19	.2	6 33	5 02	.5	6 52	5 10	.3	6 52	5 10	.3		
28	18 18	5 54	.6	5 35	6 27	.9	5 52	5 50	.0	6 10	5 18	.1	6 34	5 02	.5	6 53	5 11	.3	6 53	5 11	.3		
29	19 19	5 54	.6	5 36	6 26	.8	5 52	49	11.9	6 10	5 17	.1	6 35	5 02	.5	6 53	5 12	.3	6 53	5 12	.3		
30	19 19	5 53	.6	5 37	6 24	.8	5 52	47	.9	6 11	5 16	.1	6 36	5 02	.4	6 54	5 13	.3	6 54	5 13	.3		
31	20 20	5 53	.5	5 37	6 23	.8	5 52	47	.8	6 12	5 15	.1	6 36	5 02	.4	6 54	5 13	.3	6 54	5 13	.3		
Total..			427.4			407.9			369.9			355.2			321.2			320.0			320.0		

Total for the year, 4440.3. Total for leap year, 4451.9

LATITUDE 30° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

Date.	JANUARY.			FEBRUARY.			MARCH.			Date.	APRIL.			MAY.			JUNE.		
	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.		Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.
	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.		Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.
1	6 56	5 12	10.2	6 50	5 37	10.8	6 26	5 59	11.6	1	5 49	6 18	12.5	5 17	6 37	13.3	4 59	6 56	13.9
2	56	12	.3	50	38	.8	25	00	.6	2	48	19	.5	16	38	.4	59	57	14.0
3	57	13	.3	49	39	.8	24	00	.6	3	47	20	.5	15	39	.4	59	58	.0
4	57	14	.3	49	40	.9	23	01	.7	4	46	20	.6	14	39	.4	59	58	.0
5	57	14	.3	48	40	.9	22	02	.7	5	45	21	.6	14	40	.4	58	58	.0
6	57	15	.3	47	41	.9	20	02	.7	6	43	21	.6	13	40	.5	58	59	.0
7	57	16	.3	47	42	.9	19	03	.7	7	42	22	.7	12	41	.5	58	59	.0
8	57	17	.3	46	43	11.0	18	03	.8	8	41	23	.7	11	41	.5	58	59	.0
9	58	17	.3	45	44	.0	17	04	.8	9	40	23	.7	10	42	.5	58	00	.0
10	58	18	.3	44	45	.0	16	05	.8	10	39	24	.8	10	43	.6	58	00	.0
11	58	19	.4	43	46	.0	14	06	.8	11	37	25	.8	09	44	.6	58	01	.0
12	57	20	.4	42	46	.1	13	06	.9	12	36	25	.8	08	44	.6	58	01	.0
13	57	21	.4	42	47	.1	12	07	.9	13	35	26	.8	08	45	.6	58	02	.1
14	57	22	.4	41	48	.1	11	07	.9	14	34	26	.9	07	45	.6	58	02	.1
15	57	22	.4	40	49	.1	10	08	12.0	15	33	27	.9	06	46	.7	58	02	.1
16	57	23	.4	39	49	.2	09	09	.0	16	32	28	.9	06	47	.7	58	03	.1
17	56	24	.5	38	50	.2	07	10	.0	17	31	28	13.0	05	47	.7	58	03	.1
18	56	25	.5	37	51	.2	06	10	.1	18	30	29	.0	04	48	.7	59	03	.1
19	56	26	.5	36	52	.3	05	11	.1	19	29	29	.0	04	49	.8	59	04	.1
20	56	27	.5	35	53	.3	04	11	.1	20	28	30	.0	03	49	.8	59	04	.1
21	56	28	.5	34	53	.3	03	12	.2	21	27	30	.1	03	50	.8	59	04	.1
22	55	29	.6	33	55	.4	01	13	.2	22	26	31	.1	03	50	.8	59	04	.1
23	55	30	.6	32	56	.4	00	13	.2	23	24	32	.1	02	51	.8	00	04	.1
24	54	30	.6	31	56	.4	59	14	.2	24	23	33	.2	02	52	.8	00	05	.1
25	54	31	.6	30	56	.4	58	14	.3	25	22	33	.2	01	52	.8	00	05	.1
26	54	32	.6	29	57	.5	56	15	.3	26	22	34	.2	01	53	.9	00	05	.1
27	53	33	.7	28	58	.5	55	16	.3	27	21	34	.2	01	53	.9	01	05	.1
28	53	34	.7	27	58	.5	54	16	.4	28	20	35	.3	00	54	.9	01	05	.1
29	52	35	.7	26	59	.6	53	17	.4	29	19	36	.3	00	55	.9	02	05	.1
30	52	35	.7	-----	-----	-----	52	17	.4	30	18	36	.3	00	55	.9	02	05	.0
31	51	36	.8	-----	-----	-----	50	18	.5	31	-----	-----	-----	00	56	.9	-----	05	-----
Total.	-----	-----	324.4	-----	{ 28 d 29 d }	312.0 323.6	-----	-----	372.1	-----	-----	-----	387.3	-----	-----	423.3	-----	-----	421.6

LATITUDE 30° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

Date.	JULY			AUGUST.			Date.	SEPTEMBER.			OCTOBER.			NOVEMBER.			DECEMBER.		
	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.		Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.
	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.		Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.
1	5 02	7 05	14.0	5 19	6 54	13.6	1	5 53	5 46	11.9	6 14	5 13	11.0	6 39	5 00	11.0	6 39	5 00	10.4
2	03	05	.0	19 53	22	.7	2	54	45	.8	15	13	.0	40	00	.3	40	00	.3
3	03	05	.0	20 52	20	.5	3	55	43	.8	16	12	10.9	40	00	.3	40	00	.3
4	04	05	.0	21 51	19	.7	4	55	42	.8	17	11	.9	41	00	.3	41	00	.3
5	04	05	.0	21 50	18	.6	5	56	41	.8	17	10	.9	42	00	.3	42	00	.3
6	04	05	.0	22 50	17	.6	6	56	40	.7	18	09	.9	42	00	.3	42	00	.3
7	05	04	.0	22 49	15	.6	7	57	38	.7	19	09	.8	43	00	.3	43	00	.3
8	06	04	.0	23 48	14	.6	8	58	37	.7	20	08	.8	44	00	.3	44	00	.3
9	06	04	.0	23 47	13	.5	9	58	36	.6	20	08	.8	45	00	.3	45	00	.3
10	07	04	.0	24 46	12	.5	10	59	35	.6	21	07	.8	45	01	.3	45	01	.3
11	07	04	13.9	25 45	11	.5	11	59	34	.6	22	06	.7	46	01	.2	46	01	.2
12	07	03	.9	26 44	10	.4	12	00	33	.6	23	06	.7	47	01	.2	47	01	.2
13	08	03	.9	26 43	08	.4	13	01	32	.5	24	05	.7	47	02	.2	47	02	.2
14	08	03	.9	27 42	07	.4	14	01	31	.5	24	05	.7	48	02	.2	48	02	.2
15	09	03	.9	27 41	06	.4	15	02	30	.5	25	04	.6	48	02	.2	48	02	.2
16	09	02	.9	28 40	05	.3	16	03	29	.4	26	04	.6	49	03	.2	49	03	.2
17	10	02	.9	28 40	03	.3	17	03	27	.4	27	03	.6	50	03	.2	50	03	.2
18	10	02	.8	29 38	02	.2	18	04	26	.4	28	03	.6	50	04	.2	50	04	.2
19	11	01	.8	29 37	01	.1	19	05	25	.4	29	02	.6	51	04	.2	51	04	.2
20	12	01	.8	30 36	00	.2	20	05	24	.3	30	02	.5	51	04	.2	51	04	.2
21	12	00	.8	31 35	58	.2	21	06	23	.3	30	02	.5	52	05	.2	52	05	.2
22	13	00	.8	31 34	57	.2	22	07	22	.3	31	01	.5	52	05	.2	52	05	.2
23	13	59	.8	32 33	56	.1	23	07	21	.2	32	01	.5	53	06	.2	53	06	.2
24	14	59	.8	32 32	54	.1	24	08	20	.2	33	01	.5	53	07	.2	53	07	.2
25	14	58	.7	33 31	53	.1	25	09	19	.2	34	01	.4	54	07	.2	54	07	.2
26	15	57	.7	33 30	52	12.9	26	10	18	.1	34	00	.4	54	08	.2	54	08	.2
27	16	57	.7	34 29	51	.9	27	10	18	.1	35	00	.4	54	08	.2	54	08	.2
28	16	56	.7	34 28	50	.9	28	11	17	.1	36	00	.4	55	09	.2	55	09	.2
29	17	55	.6	35 27	48	11.9	29	12	16	.1	37	00	.4	55	10	.2	55	10	.2
30	18	55	.6	36 25	47	.9	30	12	15	.0	38	00	.4	56	10	.2	56	10	.2
31	18	54	.6	36 24	47	.8	31	13	14	.0	38	00	.4	56	11	.2	56	11	.2
Total.	429.5			409.3			370.2			354.6	319.5			317.3					

Total for the year, 4441.1. Total for leap year, 4452.7

W. B. No. 320.

U. S. DEPARTMENT OF AGRICULTURE,
WEATHER BUREAU.

SUNSHINE TABLES.

EDITION OF 1905.

GIVING

THE TIMES OF SUNRISE AND SUNSET IN MEAN SOLAR
TIME AND THE TOTAL DURATION OF SUNSHINE
FOR EVERY DAY IN THE YEAR, LATI-
TUDES 20° TO 50° NORTH.

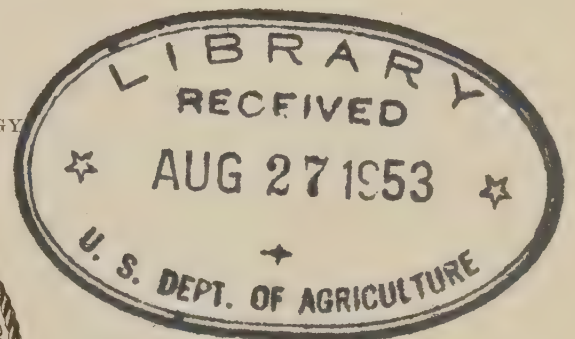
PART II.

LATITUDES 30° TO 40° NORTH.

Prepared under the direction of WILLIS L. MOORE, Chief U. S. Weather Bureau.

BY

C. F. MARVIN,
PROFESSOR OF METEOROLOGY



WASHINGTON:
WEATHER BUREAU.
1905.



SUNSHINE TABLES.

(Edition 1905.)

EXPLANATION.

The time of sunrise and sunset at a given place and expressed in mean solar time varies from day to day throughout the year, depending principally upon the declination of the sun, that is, its angular distance north or south of a position directly over the equator. Variations in the equation of time, the apparent diameter of the sun and the atmospheric refraction at the points of sunrise and sunset also affect the final result.

Furthermore, these quantities as well as the solar declination do not have the same values on corresponding days from year to year. It therefore follows that it is impossible to give in any general table the exact times of sunrise and sunset day by day.

The tables which follow have been computed from Table 61, Smithsonian Meteorological Tables, 1897, which gives the duration of sunshine for each 20 minutes of solar declination. To determine the time of sunrise and sunset for each day we have used the values of the solar declination and the equations of time given in the Nautical Almanac for the year 1899, since it is found that these are very close average values and the tables may, therefore, be accepted as approximately correct for all years. In extreme cases the error for one or more months consecutively may amount to between two or three minutes per day, or about one hour per month. This inexactness, however, is of slight consequence compared with errors due to other causes. For example, the table is computed for an ideal sea horizon, a condition only approximately realized on land surfaces, generally and widely departed from in hilly and mountainous localities. The greater or less elevation of the point of view above the ground must also be considered if the most exact results are necessary.

The times of sunrise and sunset are given in hours and minutes. To facilitate computation, the total possible sunshine is given in hours and tenths. In leap years, February 29 is given the same amount of sunshine as March 1.

LATITUDE 30° NORTH.
Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

JANUARY.				FEBRUARY.				MARCH.				Date.	APRIL.				MAY.				JUNE.			
Date.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.
1	Hrs. min. 6 56	Hrs. min. 5 12	Hrs. 10.2	Hrs. min. 6 50	Hrs. min. 5 37	Hrs. 10.8	Hrs. min. 6 26	Hrs. min. 5 59	Hrs. 11.6	Hrs. min. 5 49	Hrs. min. 6 18	Hrs. 12.5	Hrs. min. 5 17	Hrs. min. 6 37	Hrs. 13.3	Hrs. min. 4 59	Hrs. min. 6 56	Hrs. 13.9	Hrs. min. 4 59	Hrs. min. 6 56	Hrs. 13.9	Hrs. min. 4 59	Hrs. min. 6 56	Hrs. 13.9
2	56	12	.3	50	38	.8	25	00	.6	48	19	.5	16	38	.4	59	57	14.0	59	57	14.0	59	57	14.0
3	57	13	.3	49	39	.8	24	00	.6	47	20	.5	15	39	.4	59	58	.0	59	58	.0	59	58	.0
4	57	14	.3	49	40	.9	23	01	.6	46	20	.6	14	39	.4	59	58	.0	59	58	.0	59	58	.0
5	57	14	.3	48	40	.9	22	02	.7	45	21	.6	14	40	.4	58	58	.0	58	58	.0	58	58	.0
6	57	15	.3	47	41	.9	20	02	.7	43	21	.6	13	40	.5	58	59	.0	58	59	.0	58	59	.0
7	57	16	.3	47	42	.9	19	03	.7	42	22	.7	12	41	.5	58	59	.0	58	59	.0	58	59	.0
8	57	17	.3	46	43	11.0	18	03	.8	41	23	.7	11	41	.5	58	59	.0	58	59	.0	58	59	.0
9	58	17	.3	45	44	.0	17	04	.8	40	23	.7	10	42	.5	58	00	.0	58	00	.0	58	00	.0
10	58	18	.3	44	45	.0	16	05	.8	39	24	.8	10	43	.6	58	00	.0	58	00	.0	58	00	.0
11	58	19	.4	43	46	.0	14	06	.8	37	25	.8	09	44	.6	58	01	.0	58	01	.0	58	01	.0
12	57	20	.4	42	46	.1	13	06	.9	36	25	.8	08	44	.6	58	01	.0	58	01	.0	58	01	.0
13	57	21	.4	42	47	.1	12	07	.9	35	26	.8	08	45	.6	58	02	.1	58	02	.1	58	02	.1
14	57	22	.4	41	48	.1	11	07	.9	34	26	.9	07	45	.6	58	02	.1	58	02	.1	58	02	.1
15	57	22	.4	40	49	.1	10	08	12.0	33	27	.9	06	46	.7	58	02	.1	58	02	.1	58	02	.1
16	57	23	.4	39	49	.2	09	09	.0	32	28	.9	06	47	.7	58	03	.1	58	03	.1	58	03	.1
17	56	24	.5	38	50	.2	07	10	.0	31	28	13.0	05	47	.7	58	03	.1	58	03	.1	58	03	.1
18	56	25	.5	37	51	.2	06	10	.1	30	29	.0	04	48	.7	59	03	.1	59	03	.1	59	03	.1
19	56	26	.5	36	52	.3	05	11	.1	29	29	.0	04	49	.8	59	04	.1	59	04	.1	59	04	.1
20	56	27	.5	35	53	.3	04	11	.1	28	30	.0	03	49	.8	59	04	.1	59	04	.1	59	04	.1
21	56	28	.5	34	53	.3	03	12	.2	27	30	.1	03	50	.8	59	04	.1	59	04	.1	59	04	.1
22	55	29	.6	33	55	.4	01	13	.2	26	31	.1	03	50	.8	59	04	.1	59	04	.1	59	04	.1
23	55	30	.6	32	56	.4	00	13	.2	24	32	.1	02	51	.8	5	04	.1	5	04	.1	5	04	.1
24	54	30	.6	31	56	.4	59	14	.2	23	33	.2	02	52	.8	00	05	.1	00	05	.1	00	05	.1
25	54	31	.6	30	56	.4	58	14	.3	22	33	.2	01	52	.8	00	05	.1	00	05	.1	00	05	.1
26	54	32	.6	29	57	.5	56	15	.3	22	34	.2	01	53	.9	00	05	.1	00	05	.1	00	05	.1
27	53	33	.7	28	58	.5	55	16	.3	21	34	.2	01	53	.9	01	05	.1	01	05	.1	01	05	.1
28	53	34	.7	27	58	.5	54	16	.4	20	35	.3	00	54	.9	01	05	.1	01	05	.1	01	05	.1
29	52	35	.7	26	59	.6	53	17	.4	19	36	.3	00	55	.9	02	05	.1	02	05	.1	02	05	.1
30	52	35	.7	.....	.....	.....	52	17	.4	18	36	.3	00	55	.9	02	05	.0	02	05	.0	02	05	.0
31	51	36	.8	.....	.....	.....	50	18	.5	.....	.....	.....	00	56	.9	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total	.....	.....	324.4	.....	{ 28 d } { 29 d }	312.0 323.6	.....	.....	372.1	.....	.....	387.3	.....	.....	423.3	.....	.....	421.6	.....	.....	.....	.....	.....	.....

LATITUDE 30° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

Date.	JULY.			AUGUST.			Date.	SEPTEMBER.			OCTOBER.			NOVEMBER.			DECEMBER.		
	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.		Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.
1	Hrs. min. 5 02	Hrs. min. 7 05	Hrs. 14.0	Hrs. min. 5 19	Hrs. min. 6 54	Hrs. 13.6	1	Hrs. min. 5 53	Hrs. min. 6 23	Hrs. 12.8	Hrs. min. 5 53	Hrs. min. 6 46	Hrs. 11.9	Hrs. min. 6 14	Hrs. min. 5 13	Hrs. 11.0	Hrs. min. 6 39	Hrs. min. 5 00	Hrs. 10.4
2	03	05	.0	19	53	.6	2	54	22	.7	54	45	.8	15	13	.0	40	00	.3
3	03	05	.0	20	52	.5	3	38	20	.7	55	43	.8	16	12	10.9	40	00	.3
4	04	05	.0	21	51	.5	4	38	19	.7	55	42	.8	17	11	.9	41	00	.3
5	04	05	.0	21	50	.5	5	39	18	.6	56	41	.8	17	10	.9	42	00	.3
6	04	05	.0	22	50	.5	6	40	17	.6	56	40	.7	18	09	.9	42	00	.3
7	05	04	.0	22	49	.4	7	40	15	.6	57	38	.7	19	09	.8	43	00	.3
8	06	04	.0	23	48	.4	8	41	14	.6	58	37	.7	20	08	.8	44	00	.3
9	06	04	.0	23	47	.4	9	41	13	.5	58	36	.6	20	08	.8	45	00	.3
10	07	04	.0	24	46	.4	10	42	12	.5	59	35	.6	21	07	.8	45	01	.3
11	07	04	13.9	25	45	.3	11	42	11	.5	59	34	.6	22	06	.7	46	01	.2
12	07	03	.9	26	44	.3	12	43	10	.4	6 00	33	.6	23	06	.7	47	01	.2
13	08	03	.9	26	43	.3	13	43	08	.4	01	32	.5	24	05	.7	47	02	.2
14	08	03	.9	27	42	.3	14	44	07	.4	01	31	.5	24	05	.7	48	02	.2
15	09	03	.9	27	41	.2	15	44	06	.4	02	30	.5	25	04	.6	48	02	.2
16	09	02	.9	28	40	.2	16	45	05	.3	03	29	.4	26	04	.6	49	03	.2
17	10	02	.9	28	40	.2	17	45	03	.3	03	27	.4	27	03	.6	50	03	.2
18	10	02	.8	29	38	.2	18	46	02	.3	04	26	.4	28	03	.6	50	04	.2
19	11	01	.8	29	37	.1	19	46	01	.2	05	25	.4	29	02	.6	51	04	.2
20	12	01	.8	30	36	.1	20	47	00	.2	05	24	.3	30	02	.5	51	04	.2
21	12	00	.8	31	35	.1	21	48	5 58	.2	06	23	.3	30	02	.5	52	05	.2
22	13	00	.8	31	34	.0	22	48	57	.2	07	22	.3	31	01	.5	52	05	.2
23	13	6 59	.8	32	33	.0	23	49	56	.1	07	21	.2	32	01	.5	53	06	.2
24	14	59	.8	32	32	.0	24	49	54	.1	08	20	.2	33	01	.5	53	07	.2
25	14	58	.7	33	31	.0	25	50	53	.1	09	19	.2	34	01	.4	54	07	.2
26	15	57	.7	33	30	12.9	26	51	52	.0	10	18	.1	34	00	.4	54	08	.2
27	16	57	.7	34	29	.9	27	51	51	.0	10	18	.1	35	00	.4	54	08	.2
28	16	56	.7	34	28	.9	28	52	50	.0	11	17	.1	36	00	.4	55	09	.2
29	17	55	.6	35	27	.9	29	52	48	11.9	12	16	.1	37	00	.4	55	10	.2
30	18	55	.6	36	25	.8	30	53	47	.9	12	15	.0	38	00	.4	56	10	.2
31	18	54	.6	36	24	.8	31	.....	.....	.....	13	14	.0	.....	.....	.....	56	11	.2
Total	.....	.....	429.5	.....	.....	409.3	.....	.....	.....	370.2	.....	.....	354.6	.....	.....	319.5	.....	.....	317.3

Total for the year, 4441.1.

Total for leap year, 4452.7

LATITUDE 31° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

JANUARY.			FEBRUARY.			Date.	MARCH.			APRIL.			MAY.			JUNE.		
Date.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.
	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.
1	6 59	5 09	10.2	6 52	5 36	10.7	6 27	5 58	11.5	5 49	6 19	12.5	5 15	6 39	13.4	4 57	6 58	14.0
2	59	10	.2	51	36	.7	25	59	.6	48	20	.5	14	39	.4	57	59	.0
3	59	10	.2	51	37	.8	24	00	.6	46	20	.6	13	40	.4	56	00	.1
4	59	11	.2	50	38	.8	23	01	.6	45	21	.6	13	41	.5	56	00	.1
5	59	12	.2	50	39	.8	22	01	.6	44	21	.6	12	41	.5	56	01	.1
6	59	13	.2	49	40	.8	21	02	.7	43	22	.7	11	42	.5	56	01	.1
7	00	14	.2	48	41	.9	20	02	.7	41	23	.7	10	43	.5	56	02	.1
8	00	14	.2	47	42	.9	19	03	.7	40	23	.7	09	43	.6	56	02	.1
9	00	15	.3	46	43	.9	18	04	.8	39	24	.8	09	44	.6	56	02	.1
10	00	16	.3	45	43	11.0	16	04	.8	38	25	.8	08	45	.6	55	03	.1
11	00	17	.3	45	44	.0	15	05	.8	37	25	.8	07	45	.6	55	03	.1
12	00	18	.3	44	45	.0	14	06	.9	35	26	.8	06	46	.7	55	04	.1
13	00	18	.3	43	46	.0	12	07	.9	34	27	.9	06	47	.7	56	04	.1
14	59	19	.3	42	47	.1	11	07	.9	33	27	.9	05	47	.7	56	04	.1
15	59	20	.4	41	47	.1	10	08	.9	32	28	.9	04	48	.7	56	05	.2
16	59	21	.4	40	48	.1	09	09	12.0	31	29	13.0	04	49	.7	56	05	.2
17	59	22	.4	39	49	.2	07	09	.0	30	29	.0	03	49	.8	56	06	.2
18	58	23	.4	38	50	.2	06	10	.0	29	30	.0	02	50	.8	56	06	.2
19	58	24	.4	37	51	.2	05	11	.1	28	31	.0	02	51	.8	56	06	.2
20	58	25	.4	36	52	.3	04	11	.1	27	31	.1	01	51	.8	56	06	.2
21	58	26	.5	35	52	.3	03	12	.2	25	32	.1	01	52	.9	56	07	.2
22	57	27	.5	34	54.3	.3	01	13	.2	24	33	.1	00	53	.9	57	07	.2
23	57	28	.5	33	55.4	.4	00	13	.2	23	33	.2	00	53	.9	57	07	.2
24	56	28	.5	32	55	.4	5	14	.3	22	34	.2	4	54	.9	57	07	.2
25	56	29	.6	31	55	.4	57	15	.3	21	35	.2	59	54	.9	58	07	.2
26	56	30	.6	30	56	.4	56	15	.3	20	35	.2	59	55	.9	58	07	.2
27	55	31	.6	29	57	.5	55	16	.4	19	36	.3	58	55	14.0	58	07	.2
28	55	32	.6	28	58	.5	54	17	.4	18	37	.3	58	56	.0	59	07	.1
29	54	33	.6	27	58	.5	52	17	.4	17	37	.3	57	57	.0	59	08	.1
30	53	34	.7	.....	.....	.....	51	18	.4	16	38	.4	57	58	.0	59	08	.1
31	53	35	.7	.....	.....	.5	50	18	.5	.....	.....	.....	57	58	.0	.....	.....	.....
Total	.....	.....	322.2	.....	28 d } 29 d }	310.7 } 322.2 }	.....	.....	371.8	.....	.....	388.2	.....	.....	425.7	.....	.....	424.1

LATITUDE 31° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

Date.	JULY.			AUGUST.			Date.	SEPTEMBER.			OCTOBER.			NOVEMBER.			DECEMBER.		
	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.		Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.
1	Hrs. min. 5 00	Hrs. min. 7 08	Hrs. 14.1	Hrs. min. 5 17	Hrs. min. 6 55	Hrs. 13.6	1	Hrs. min. 5 36	Hrs. min. 6 24	Hrs. 12.8	Hrs. min. 5 54	Hrs. min. 5 45	Hrs. 11.9	Hrs. min. 6 15	Hrs. min. 5 12	Hrs. 10.9	Hrs. min. 6 41	Hrs. min. 4 57	Hrs. 10.3
2	00	07	.1	18	54	.6	2	37	22	.8	54	44	.8	16	11	.9	42	57	.3
3	01	07	.1	18	54	.6	3	37	21	.7	55	43	.8	17	10	.9	42	58	.3
4	01	07	.1	19	53	.6	4	38	20	.7	56	42	.8	18	09	.8	43	58	.2
5	01	07	.1	20	52	.5	5	38	19	.7	56	40	.7	19	08	.8	44	58	.2
6	02	07	.1	20	51	.5	6	39	18	.6	57	39	.7	20	08	.8	45	58	.2
7	02	07	.1	21	50	.5	7	40	16	.6	58	38	.7	20	07	.8	46	58	.2
8	03	07	.1	21	50	.5	8	40	15	.6	58	37	.6	21	07	.8	46	58	.2
9	03	07	.1	22	49	.5	9	41	14	.5	59	36	.6	22	06	.7	47	58	.2
10	04	06	.0	22	48	.4	10	41	12	.5	59	35	.6	23	05	.7	48	58	.2
11	05	06	.0	23	47	.4	11	42	11	.5	6 00	33	.6	24	04	.7	48	58	.2
12	05	06	.0	24	46	.4	12	42	10	.5	01	32	.5	25	04	.7	49	59	.2
13	06	06	.0	25	45	.3	13	43	09	.4	01	31	.5	25	03	.6	50	59	.2
14	06	05	.0	25	44	.3	14	43	08	.4	02	30	.5	26	03	.6	50	00	.2
15	06	05	.0	26	43	.3	15	44	06	.4	03	29	.4	27	02	.6	51	00	.2
16	07	05	.0	26	42	.2	16	45	05	.3	03	28	.4	28	02	.6	51	00	.2
17	08	04	13.9	27	41	.2	17	45	04	.3	04	27	.4	29	01	.5	52	01	.1
18	08	04	.9	27	40	.2	18	46	02	.3	05	26	.3	30	01	.5	53	01	.1
19	09	03	.9	28	39	.2	19	46	01	.2	06	24	.3	31	00	.5	53	01	.1
20	10	03	.9	29	38	.1	20	47	00	.2	06	23	.3	32	00	.5	54	02	.1
21	10	02	.9	30	36	.1	21	48	5 58	.2	07	22	.3	32	00	.5	54	02	.1
22	11	02	.9	30	35	.1	22	48	57	.2	08	21	.2	33	59 4	.4	55	03	.1
23	11	01	.8	31	34	.1	23	49	56	.1	08	20	.2	34	59	.4	55	03	.1
24	12	01	.8	31	33	.0	24	49	54	.1	09	19	.2	35	59	.4	56	04	.1
25	12	00	.8	32	32	.0	25	50	53	.1	10	18	.1	36	59	.4	56	05	.1
26	13	6 59	.8	32	31	.0	26	51	52	.0	11	17	.1	37	58	.4	56	05	.1
27	14	59	.7	33	30	.0	27	51	51	.0	11	16	.1	38	58	.3	57	06	.1
28	14	58	.7	34	29	12.9	28	52	49	.0	12	15	.1	38	58	.3	57	06	.2
29	15	57	.7	34	28	.9	29	52	48	11.9	13	15	.0	39	58	.3	58	07	.2
30	16	57	.7	35	26	.9	30	53	47	.9	14	14	.0	40	58	.3	58	08	.2
31	16	56	.7	36	25	.8	31	.....	.....	.....	15	13	.0	.....	58	.....	58	08	.2
Total	.....	.....	432.0	.....	.....	410.7	.....	.....	.....	370.5	.....	.....	353.7	.....	.....	317.6	.....	.....	315.4

Total for the year, 4442. 6. Total for leap year, 4454. 1

LATITUDE 32° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

Date.	JANUARY.			FEBRUARY.			MARCH.			APRIL.			MAY.			JUNE.		
	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.
1	Hrs. min. 7 01	Hrs. min. 5 07	Hrs. 10.1	Hrs. min. 6 54	Hrs. min. 5 34	Hrs. 10.7	Hrs. min. 6 27	Hrs. min. 5 58	Hrs. 11.5	Hrs. min. 5 48	Hrs. min. 6 19	Hrs. 12.5	Hrs. min. 5 14	Hrs. min. 6 40	Hrs. 13.4	Hrs. min. 4 54	Hrs. min. 7 01	Hrs. 14.1
2	01	07	.1	53	35	.7	26	58	.5	47	20	.5	13	41	.5	54	02	.1
3	02	08	.1	53	36	.7	25	59	.6	46	21	.6	12	42	.5	54	03	.1
4	02	09	.1	52	36	.8	24	00	.6	45	21	.6	11	42	.5	54	03	.1
5	02	10	.1	51	37	.8	23	01	.6	43	22	.6	10	43	.5	54	03	.2
6	02	10	.1	50	38	.8	21	01	.7	42	23	.7	09	44	.6	53	04	.2
7	02	11	.2	50	39	.8	20	02	.7	41	24	.7	08	44	.6	53	04	.2
8	02	12	.2	49	40	.9	19	03	.7	39	24	.7	08	45	.6	53	05	.2
9	02	13	.2	48	41	.9	18	03	.8	38	25	.8	07	46	.7	53	05	.2
10	02	14	.2	47	42	.9	16	04	.8	37	26	.8	06	47	.7	53	06	.2
11	02	14	.2	46	43	.9	15	05	.8	36	26	.8	05	47	.7	53	06	.2
12	02	15	.2	45	44	11.0	14	06	.9	34	27	.9	04	48	.7	53	06	.2
13	02	16	.2	44	45	.0	13	06	.9	33	28	.9	04	49	.7	53	07	.2
14	02	17	.3	43	45	.0	12	07	.9	32	28	.9	03	49	.8	53	07	.2
15	01	18	.3	42	46	.1	10	08	.9	31	29	13.0	02	50	.8	53	07	.2
16	01	19	.3	41	47	.1	09	09	12.0	30	30	.0	02	51	.8	53	08	.2
17	01	20	.3	40	48	.1	07	09	.0	29	30	.0	01	51	.8	53	08	.3
18	01	21	.3	39	49	.2	06	10	.0	28	31	.1	00	52	.9	53	08	.3
19	00	22	.4	38	50	.2	05	11	.1	26	32	.1	00	53	.9	54	09	.3
20	00	23	.4	37	51	.2	04	11	.1	25	32	.1	4 59	54	.9	54	09	.3
21	00	24	.4	36	51	.3	03	12	.2	24	33	.1	58	54	.9	54	09	.3
22	6 59	25	.4	35	52	.3	01	13	.2	23	34	.2	58	55	14.0	54	09	.3
23	59	26	.4	34	53	.3	00	14	.2	22	35	.2	58	56	.0	54	10	.3
24	58	26	.5	33	54	.4	5 58	14	.3	20	35	.2	57	56	.0	55	10	.3
25	58	27	.5	32	54	.4	57	15	.3	20	36	.3	57	57	.0	55	10	.3
26	57	28	.5	31	55	.4	56	15	.3	19	37	.3	56	57	.0	55	10	.2
27	57	29	.5	30	56	.4	55	16	.4	18	37	.3	56	58	.0	56	10	.2
28	56	30	.6	28	57	.5	53	17	.4	17	38	.4	55	59	.1	56	10	.2
29	56	31	.6	27	58	.5	52	18	.4	16	39	.4	55	00	.1	56	10	.2
30	55	32	.6	.....	.....	.....	51	18	.5	15	39	.4	55	00	.1	57	10	.2
31	54	33	.6	.....	.....	.....	50	19	.5	.....	.....	.....	55	00	.1	.....	.....	.....
Total	.....		319.9	{ 28 d 309.8 29 d 321.3 }		.....	{ ..... ..... }		.....	.....		389.1	.....		427.9	.....		426.5

LATITUDE 32° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

JULY.				AUGUST.			SEPTEMBER.			OCTOBER.			NOVEMBER.			DECEMBER.		
Date.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.
1	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.
2	4 57	7 10	14.2	5 15	6 57	13.7	5 35	6 24	12.8	5 54	5 45	11.8	6 17	5 10	10.9	6 43	4 55	10.2
3	58	10	.2	16	56	.7	36	23	.8	55	44	.8	18	10	.9	44	55	.2
4	58	10	.2	16	56	.7	36	22	.8	55	43	.8	19	09	.8	45	55	.2
5	58	10	.2	17	55	.6	37	21	.7	56	41	.8	20	08	.8	46	55	.2
6	59	10	.2	18	54	.6	38	20	.7	57	40	.7	20	07	.8	46	55	.2
7	59	10	.2	18	53	.6	38	18	.7	57	39	.7	21	06	.8	47	55	.1
8	5 00	09	.2	19	52	.6	39	17	.6	58	38	.7	22	06	.7	48	56	.1
9	00	09	.1	20	51	.5	40	15	.6	59	36	.6	23	05	.7	49	56	.1
10	01	09	.1	20	50	.5	40	14	.6	6 00	35	.6	24	04	.7	50	56	.1
11	02	09	.1	21	49	.5	41	13	.5	00	34	.6	25	04	.6	50	56	.1
12	02	09	.1	22	48	.4	41	12	.5	01	33	.5	26	03	.6	51	56	.1
13	02	08	.1	22	47	.4	42	10	.5	01	32	.5	26	02	.6	51	56	.1
14	03	08	.1	23	46	.4	42	09	.4	02	30	.5	27	01	.6	52	57	.1
15	03	08	.1	24	45	.4	43	08	.4	03	29	.4	28	01	.5	53	57	.1
16	04	07	.1	24	44	.3	44	06	.4	04	28	.4	29	00	.5	53	57	.1
17	05	07	.0	25	43	.3	44	05	.3	04	27	.4	30	00	.5	54	58	.1
18	05	06	.0	26	42	.3	45	04	.3	05	26	.3	31	59	.5	55	58	.1
19	06	06	.0	26	41	.2	46	03	.3	06	25	.3	32	59	.5	55	59	.1
20	07	06	.0	27	40	.2	46	01	.3	06	24	.3	33	58	.4	56	59	.1
21	07	05	.0	28	39	.2	47	00	.2	07	22	.3	34	58	.4	56	59	.1
22	08	05	13.9	28	38	.2	48	5 58	.2	08	21	.2	34	58	.4	57 00	5 00	.1
23	09	04	.9	29	37	.1	48	57	.2	09	20	.2	35	57	.4	57 00	00	.1
24	09	04	.9	30	36	.1	49	56	.1	10	19	.2	36	57	.3	58 01	01	.1
25	10	03	.9	30	34	.1	49	54	.1	10	18	.1	37	57	.3	58 02	02	.1
26	10	02	.9	31	33	.0	50	53	.1	11	17	.1	38	56	.3	59 02	02	.1
27	11	02	.8	31	32	.0	51	52	.0	12	16	.1	39	56	.3	59 03	03	.1
28	12	01	.8	32	31	.0	51	50	.0	13	15	.0	40	56	.3	59 03	03	.1
29	12	00	.8	33	30	.0	52	49	.0	14	14	.0	41	56	.3	7 00 04	04	.1
30	13	59	.8	33	28	12.9	53	48	11.9	14	13	.0	42	56	.2	00 05	05	.1
31	14	58	.7	34	27	.9	53	47	.9	15	12	10.9	42	55	.2	00 05	05	.1
Total	.....	.....	434.3	.....	.....	412.3	.....	.....	370.9	.....	.....	352.7	.....	.....	315.8	.....	.....	313.6

Total for the year, 4444.6.

Total for leap year, 4456.1

LATITUDE 33° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

JANUARY.			FEBRUARY.			MARCH.			APRIL.			MAY.			JUNE.				
Date.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	
1	Hrs. min. 7 04	Hrs. min. 5 04	Hrs. 10.0	Hrs. min. 6 55	Hrs. min. 5 32	Hrs. 10.6	Hrs. min. 6 28	Hrs. min. 5 57	Hrs. 11.5	Hrs. min. 5 48	Hrs. min. 6 20	Hrs. 12.5	Hrs. min. 5 12	Hrs. min. 6 42	Hrs. 13.5	Hrs. min. 4 52	Hrs. min. 7 03	Hrs. 14.2	
2	04 05	05 33	.0	55 33	33	.6	27	58	.5	47 21	21	.6	11 43	43	.5	52 52	04 04	.2	
3	04 06	06 34	.0	54 34	34	.7	26	59	.6	45 21	21	.6	10 43	43	.6	51 51	05 05	.2	
4	04 06	06 35	.0	53 35	35	.7	24	59	.6	44 22	22	.6	09 44	44	.6	51 51	05 05	.2	
5	04 07	07 36	.0	53 36	36	.7	23	00	.6	43 23	23	.7	08 45	45	.6	51 51	06 06	.2	
6	04 08	08 37	.1	52 37	37	.8	22	01	.6	41 24	24	.7	08 45	45	.6	51 51	06 06	.2	
7	04 09	09 38	.1	51 38	38	.8	21	02	.7	40 24	24	.7	07 46	46	.7	51 51	07 07	.3	
8	04 10	10 39	.1	50 39	39	.8	19	02	.7	39 25	25	.8	06 47	47	.7	51 51	07 07	.3	
9	04 11	11 40	.1	49 40	40	.8	18	03	.8	37 26	26	.8	05 48	48	.7	50 50	08 08	.3	
10	04 11	11 40	.1	48 40	40	.9	17	04	.8	36 26	26	.8	04 48	48	.7	50 50	08 08	.3	
11	04 12	12 42	.1	48 42	42	.9	16	05	.8	35 27	27	.9	03 49	49	.8	50 50	09 09	.3	
12	04 13	13 42	.2	46 42	42	.9	14	05	.8	34 28	28	.9	02 50	50	.8	50 50	09 09	.3	
13	04 14	14 43	.2	46 43	43	.9	13	06	.9	32 29	29	.9	02 51	51	.8	50 50	09 09	.3	
14	04 15	15 44	.2	45 44	44	11.0	12	07	.9	31 29	29	13.0	01 51	51	.8	50 50	10 10	.3	
15	04 16	16 45	.2	44 45	45	.0	10	08	.9	30 30	30	.0	00 52	52	.9	50 50	10 10	.3	
16	03 17	17 46	.2	43 46	46	.1	09	08	12.0	29 31	31	.0	00 53	53	.9	50 50	10 10	.3	
17	03 18	18 47	.2	42 47	47	.1	08	09	.0	27 32	32	.1	4 59	53	.9	51 51	11 11	.3	
18	03 19	19 48	.3	40 48	48	.1	06	10	.0	26 32	32	.1	58 54	54	.9	51 51	11 11	.3	
19	02 19	19 49	.3	39 49	49	.2	05	11	.1	25 33	33	.1	58 55	55	14.0	51 51	11 11	.3	
20	02 20	20 49	.3	38 49	49	.2	04	11	.1	24 34	34	.2	57 56	56	.0	51 51	12 12	.3	
21	02 22	22 50	.3	37 50	50	.2	02	12	.2	23 34	34	.2	56* 57	57	.0	51 51	12 12	.3	
22	01 23	23 51	.4	36 51	51	.3	01	13	.2	22 35	35	.2	56 57	57	.0	52 52	12 12	.3	
23	01 24	24 52	.4	35 52	52	.3	5 59	14	.2	20 36	36	.3	55 58	58	.0	52 52	12 12	.3	
24	00 24	24 53	.4	34 53	53	.3	58 58	14	.3	19 37	37	.3	55 58	58	.1	52 52	12 12	.3	
25	00 25	25 54	.4	33 54	54	.3	57 57	15	.3	18 38	38	.3	54 59	59	.1	52 52	12 12	.3	
26	6 59	26 54	.4	32 54	54	.4	56 56	16	.3	17 38	38	.3	54 7 00	00	.1	53 53	13 13	.3	
27	59 59	27 55	.5	30 55	55	.4	54 54	16	.4	16 39	39	.4	54 00	00	.1	53 53	13 13	.3	
28	58 58	28 56	.5	29 56	56	.4	53 53	17	.4	15 40	40	.4	53 01	01	.1	53 53	13 13	.3	
29	58 58	29 57	.5	28 57	57	.5	52 52	18	.4	14 40	40	.4	52 02	02	.2	54 54	13 13	.3	
30	57 57	30 58	.6	.....	.....	.....	51 51	19	.5	13 41	41	.5	52 02	02	.2	54 54	13 13	.3
31	56 56	31 59	.6	.....	.....	.....	49 49	19	.5	.....	.....	.....	52 03	03	.2	.....	.....	.....
Total			317.7	{ 28 d 308.4 29 d 319.9 }					371.6		
										430.1			428.4		

LATITUDE 33° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

Date.	JULY.			AUGUST.			SEPTEMBER.			Date.	OCTOBER.			NOVEMBER.			DECEMBER.		
	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.		Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.
1	Hrs. min. 4 54	Hrs. min. 7 13	Hrs. 14.3	Hrs. min. 5 13	Hrs. min. 6 59	Hrs. 13.8	Hrs. min. 5 34	Hrs. min. 6 25	Hrs. 12.8	1	Hrs. min. 5 54	Hrs. min. 5 45	Hrs. 11.8	Hrs. min. 6 18	Hrs. min. 5 09	Hrs. 10.8	Hrs. min. 6 45	Hrs. min. 4 53	Hrs. 10.1
2	55	13	.3	14	58	.7	35	24	.8	2	55	44	.8	19	08	.8	46	53	.1
3	55	13	.3	14	58	.7	35	23	.8	3	56	42	.8	20	07	.8	47	53	.1
4	56	12	.3	15	57	.7	36	22	.8	4	56	41	.7	21	06	.8	48	53	.1
5	56	12	.3	16	55	.7	37	20	.7	5	57	40	.7	22	05	.7	49	53	.1
6	57	12	.3	17	55	.6	38	19	.7	6	58	38	.7	23	05	.7	50	53	.1
7	58	12	.2	17	54	.6	38	18	.7	7	59	37	.6	24	04	.7	50	53	.0
8	58	12	.2	18	53	.6	39	16	.6	8	59	36	.6	25	03	.6	51	53	.0
9	58	12	.2	19	52	.6	40	15	.6	9	6 00	34	.6	25	03	.6	52	53	.0
10	59	11	.2	19	51	.5	40	13	.5	10	01	33	.5	26	02	.6	53	54	.0
11	5 00	11	.2	20	50	.5	41	12	.5	11	01	32	.5	27	01	.6	53	54	.0
12	00	11	.2	21	49	.5	41	11	.5	12	02	31	.5	28	00	.5	54	54	.0
13	00	11	.2	22	48	.4	42	10	.5	13	03	30	.4	29	00	.5	55	54	.0
14	01	10	.2	22	47	.4	43	08	.4	14	04	28	.4	30	59	.5	55	55	.0
15	02	10	.1	23	46	.4	43	07	.4	15	04	27	.4	31	58	.5	56	55	.0
16	02	09	.1	23	45	.4	44	05	.4	16	05	26	.4	32	58	.4	56	55	.0
17	03	09	.1	24	44	.3	45	04	.3	17	06	25	.3	33	57	.4	57	56	.0
18	04	08	.1	25	42	.3	45	03	.3	18	07	24	.3	34	57	.4	58	56	.0
19	04	08	.1	25	41	.3	46	01	.3	19	07	23	.3	35	56	.4	58	56	.0
20	05	07	.0	26	40	.2	47	00	.2	20	08	22	.2	36	56	.3	59	57	.0
21	06	07	.0	27	39	.2	47	59	.2	21	09	20	.2	36	56	.3	59	57	.0
22	06	06	.0	28	38	.2	48	57	.2	22	10	19	.2	37	55	.3	7 00	58	.0
23	07	06	.0	28	37	.1	49	56	.1	23	11	18	.1	39	55	.3	00	58	.0
24	08	05	.0	29	35	.1	50	54	.1	24	12	17	.1	39	54	.2	01	59	.0
25	08	04	13.9	30	34	.1	50	53	.0	25	12	16	.1	40	54	.2	01 5	00	.0
26	09	04	.9	30	33	.0	51	52	.0	26	13	15	.0	41	54	.2	02	00	.0
27	10	03	.9	31	32	.0	51	50	.0	27	14	14	.0	42	54	.2	02	01	.0
28	10	02	.9	32	31	.0	52	49	11.9	28	15	13	.0	43	53	.2	02	01	.0
29	11	01	.8	32	29	.0	53	48	.9	29	16	12	10.9	44	53	.2	03	02	.0
30	12	01	.8	33	28	12.9	54	46	.9	30	17	11	.9	45	53	.1	03	03	.0
31	12	00	.8	34	27	.9	.....	.....	.....	31	18	10	.9	.....	.....	.....	03	03	.0
Total			436.9	.....			.....	.....	371.1	.....	.....	.....	351.9	.....	.....	313.8	.....	.....	310.6

Total for the year, 4444.5. Total for leap year, 4456.0

LATITUDE 34° NORTH.
Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

JANUARY.			FEBRUARY.			MARCH.			APRIL.			MAY.			JUNE.			
Date.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.
1	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.
1	7 06	5 02	9.9	6 57	5 30	10.6	6 29	5 56	11.5	5 47	6 20	12.5	5 11	6 43	13.5	4 49	7 06	14.3
2	6 06	03 03	.9	56 56	31 31	.6	27 27	57 57	.5	46 46	21 21	.6	10 10	44 44	.6	49 49	07 07	.3
3	6 06	03 03	10.0	56 56	32 32	.6	26 26	58 58	.5	45 45	22 22	.6	09 09	45 45	.6	49 49	07 07	.3
4	6 06	04 04	.0	55 55	33 33	.6	25 25	59 59	.6	43 43	23 23	.7	08 08	46 46	.6	49 49	08 08	.3
5	6 06	05 05	.0	54 54	34 34	.7	24 24	59 59	.6	42 42	24 24	.7	07 07	46 46	.7	49 49	08 08	.3
6	07 07	06 06	.0	53 53	35 35	.7	22 22	6 00	.6	40 40	24 24	.7	06 06	47 47	.7	48 48	09 09	.3
7	07 07	06 06	.0	52 52	36 36	.7	21 21	01 01	.7	39 39	25 25	.8	05 05	48 48	.7	48 48	09 09	.3
8	07 07	07 07	.0	52 52	37 37	.8	20 20	02 02	.7	38 38	26 26	.8	04 04	49 49	.7	48 48	10 10	.4
9	06 06	08 08	.0	51 51	38 38	.8	18 18	03 03	.7	36 36	27 27	.8	03 03	50 50	.8	48 48	10 10	.4
10	06 06	09 09	.1	50 50	39 39	.8	17 17	03 03	.8	35 35	27 27	.9	02 02	50 50	.8	48 48	11 11	.4
11	06 06	10 10	.1	49 49	40 40	.9	16 16	04 04	.8	34 34	28 28	.9	01 01	51 51	.8	48 48	11 11	.4
12	06 06	11 11	.1	48 48	41 41	.9	15 15	05 05	.8	33 33	29 29	.9	01 01	52 52	.9	48 48	12 12	.4
13	06 06	12 12	.1	47 47	42 42	.9	13 13	06 06	.9	31 31	30 30	13.0	00 00	53 53	.9	48 48	12 12	.4
14	06 06	13 13	.1	46 46	43 43	11.0	12 12	07 07	.9	30 30	30 30	.0	4 59	53 53	.9	48 48	12 12	.4
15	06 06	14 14	.1	45 45	44 44	.0	10 10	08 08	.9	29 29	31 31	.0	58 58	54 54	.9	48 48	13 13	.4
16	05 05	15 15	.2	44 44	45 45	.0	09 09	08 08	12.0	28 28	32 32	.1	58 58	55 55	14.0	48 48	13 13	.4
17	05 05	16 16	.2	43 43	46 46	.0	08 08	09 09	.0	26 26	33 33	.1	57 57	55 55	.0	48 48	13 13	.4
18	05 05	17 17	.2	42 42	47 47	.1	06 06	10 10	.0	25 25	33 33	.1	56 56	56 56	.0	48 48	14 14	.4
19	05 05	17 17	.2	40 40	48 48	.1	05 05	11 11	.1	24 24	34 34	.2	55 55	57 57	.0	48 48	14 14	.4
20	04 04	18 18	.2	39 39	48 48	.2	04 04	11 11	.1	23 23	35 35	.2	55 55	58 58	.0	48 48	14 14	.4
21	04 04	20 20	.3	38 38	49 49	.2	02 02	12 12	.2	22 22	36 36	.2	54 54	59 59	.1	49 49	14 14	.4
22	03 03	21 21	.3	37 37	50 50	.2	01 01	13 13	.2	20 20	36 36	.3	53 53	7 00	.1	49 49	15 15	.4
23	03 03	22 22	.3	36 36	51 51	.3	5 59	14 14	.2	19 19	37 37	.3	53 53	00 00	.1	49 49	15 15	.4
24	02 02	22 22	.3	35 35	51 51	.3	58 58	14 14	.3	18 18	38 38	.3	52 52	01 01	.1	49 49	15 15	.4
25	02 02	23 23	.4	34 34	53 53	.3	57 57	15 15	.3	17 17	39 39	.4	52 52	01 01	.2	50 50	15 15	.4
26	01 01	24 24	.4	33 33	54 54	.3	55 55	16 16	.3	16 16	40 40	.4	52 52	02 02	.2	50 50	15 15	.4
27	01 01	25 25	.4	31 31	54 54	.4	54 54	17 17	.4	15 15	40 40	.4	51 51	03 03	.2	50 50	15 15	.4
28	00 00	26 26	.4	30 30	55 55	.4	53 53	18 18	.4	14 14	41 41	.5	51 51	03 03	.2	51 51	15 15	.4
29	6 59	27 27	.5	29 29	56 56	.5	51 51	18 18	.4	13 13	42 42	.5	50 50	04 04	.2	51 51	15 15	.4
30	59 59	28 28	.5	.....	.....	.....	50 50	19 19	.5	12 12	42 42	.5	50 50	05 05	.3	52 52	15 15	.4
31	58 58	30 30	.5	.....	.....	.....	49 49	20 20	.5	.....	.....	.....	50 50	05 05	.3	.....	.....	.....
Total	.....	.....	315.7	{ 28 d 307.4 } { 29 d 318.9 }	.....	371.4	.....	.....	391.4	.....	.....	432.1	.....	.....	431.3	.....	.....	431.3

LATITUDE 34° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

JULY.				AUGUST.				SEPTEMBER.				OCTOBER.				NOVEMBER.				DECEMBER.					
Date.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Date.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.			
1	Hrs. min. 4 52	Hrs. min. 7 15	Hrs. 14.4	Hrs. min. 5 11	Hrs. min. 7 01	Hrs. 13.8	1	Hrs. min. 5 34	Hrs. min. 6 26	Hrs. 12.9	Hrs. min. 5 55	Hrs. min. 5 45	Hrs. 11.8	Hrs. min. 6 20	Hrs. min. 5 08	Hrs. 10.8	Hrs. min. 6 48	Hrs. min. 4 51	Hrs. 10.1	Hrs. min. 6 48	Hrs. min. 4 51	Hrs. 10.1			
2	52	15	.4	12	00	.8	2	34	25	.9	55	43	.8	21	07	.8	48	51	.0	48	51	.0			
3	53	15	.4	13	6	.8	3	35	24	.8	56	42	.8	22	06	.7	49	51	.0	49	51	.0			
4	53	15	.4	13	58	.7	4	35	22	.8	57	41	.7	23	05	.7	50	51	.0	50	51	.0			
5	54	15	.3	14	57	.7	5	36	21	.7	58	39	.7	24	04	.7	51	51	.0	51	51	.0			
6	54	15	.3	15	56	.7	6	37	20	.7	58	38	.7	24	03	.6	52	51	.0	52	51	.0			
7	55	14	.3	16	56	.7	7	38	18	.7	59	36	.6	25	02	.6	53	51	.0	53	51	.0			
8	56	14	.3	16	55	.6	8	38	17	.6	6 00	35	.6	26	02	.6	54	51	.0	54	51	.0			
9	56	14	.3	17	54	.6	9	39	15	.6	01	34	.6	27	01	.6	54	51	9.9	54	51	9.9			
10	57	14	.3	18	53	.6	10	40	14	.6	01	33	.5	28	00	.5	55	51	.9	55	51	.9			
11	57	14	.3	18	52	.5	11	41	12	.5	02	31	.5	29	59	.5	56	51	.9	56	51	.9			
12	57	13	.3	19	51	.5	12	41	11	.5	03	30	.5	30	58	.5	56	52	.9	56	52	.9			
13	58	13	.2	20	49	.5	13	42	10	.5	04	29	.4	31	58	.4	57	52	.9	57	52	.9			
14	59	13	.2	21	48	.5	14	42	09	.4	05	28	.4	32	57	.4	58	52	.9	58	52	.9			
15	59	12	.2	21	47	.4	15	43	07	.4	05	26	.4	33	56	.4	58	52	.9	58	52	.9			
16	5 00	12	.2	22	46	.4	16	44	06	.4	06	25	.3	34	56	.4	59	53	.9	59	53	.9			
17	01	11	.2	23	45	.4	17	45	04	.3	07	24	.3	35	55	.3	7 00	53	.9	7 00	53	.9			
18	01	11	.2	23	44	.3	18	45	03	.3	07	23	.3	36	55	.3	00	54	.9	00	54	.9			
19	02	10	.1	24	43	.3	19	46	02	.3	08	22	.2	37	54	.3	01	54	.9	01	54	.9			
20	03	10	.1	25	42	.3	20	47	00	.2	09	20	.2	38	54	.3	01	54	.9	01	54	.9			
21	04	09	.1	26	40	.2	21	47	5 59	.2	10	19	.2	38	54	.2	02	55	.9	02	55	.9			
22	04	08	.1	26	39	.2	22	48	57	.2	11	18	.1	40	53	.2	02	55	.9	02	55	.9			
23	05	08	.0	27	38	.2	23	49	56	.1	12	17	.1	41	53	.2	03	56	.9	03	56	.9			
24	06	07	.0	28	37	.1	24	50	54	.1	13	16	.1	42	52	.2	03	57	.9	03	57	.9			
25	06	06	.0	28	35	.1	25	50	53	.0	14	15	.0	42	52	.2	04	57	.9	04	57	.9			
26	07	06	.0	29	34	.1	26	51	52	.0	14	14	.0	43	52	.1	04	58	.9	04	58	.9			
27	08	05	.0	30	33	.0	27	52	50	.0	15	13	.0	44	51	.1	04	58	.9	04	58	.9			
28	08	04	13.9	31	32	.0	28	52	49	11.9	16	12	10.9	45	51	.1	05	59	.9	05	59	.9			
29	09	03	.9	31	30	.0	29	53	48	.9	17	11	.9	46	51	.1	5 00	00	.9	05	00	.9			
30	10	03	.9	32	29	.0	30	54	46	.9	18	10	.9	47	51	.1	05	00	.9	05	00	.9			
31	10	02	.9	33	28	12.9	31	.....	.....	.....	19	08	.8	.....	.....	.....	06	01	.9	06	01	.9			
Total			439 2	.....			.....	.....			.....			.....			.....			.....			.....

LATITUDE 35° NORTH.
Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

Date.	JANUARY.			FEBRUARY.			MARCH.			Date.	APRIL.			MAY.			JUNE.		
	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.		Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.
1	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	1	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.
2	7 08	5 00	9.8	6 59	5 29	10.5	6 29	5 56	11.4	2	5 47	6 21	12.6	5 09	6 45	13.6	4 47	7 08	14.4
3	8 08	00	.9	58	30	.5	28	57	.5	3	46	22	.6	08	46	.6	47	09	.4
4	9 09	01	.9	57	31	.6	27	58	.5	4	44	22	.6	07	47	.7	46	10	.4
5	9 09	02	.9	57	32	.6	26	58	.5	5	43	23	.7	06	47	.7	46	10	.4
6	9 09	02	.9	56	33	.6	24	59	.6	6	41	24	.7	05	48	.7	46	10	.4
7	9 09	03	.9	55	34	.6	23	00	.6	7	40	25	.8	04	49	.7	46	11	.4
8	9 09	04	.9	54	35	.7	22	01	.6	8	38	26	.8	03	50	.8	46	12	.4
9	9 09	05	.9	53	36	.7	20	02	.7	9	37	27	.8	02	51	.8	45	12	.4
10	9 09	06	10.0	52	37	.7	19	02	.7	10	36	28	.9	01	52	.8	45	13	.5
11	9 09	07	.0	51	38	.8	18	03	.8	11	34	28	.9	00	52	.9	45	13	.5
12	8 08	08	.0	50	39	.8	16	04	.8	12	33	29	.9	4 59	53	.9	45	14	.5
13	8 08	09	.0	49	40	.8	15	05	.8	13	32	30	13.0	59	54	.9	45	14	.5
14	8 08	10	.0	48	41	.9	14	06	.9	14	30	30	.0	58	55	.9	45	15	.5
15	8 08	11	.0	47	42	.9	12	07	.9	15	29	31	.0	57	55	14.0	45	15	.5
16	8 08	12	.1	46	43	.9	11	07	12.0	16	28	32	.1	56	56	.0	45	15	.5
17	8 08	12	.1	45	44	11.0	09	08	.0	17	27	33	.1	56	57	.0	45	16	.5
18	7 07	13	.1	44	45	.0	08	09	.0	18	25	34	.1	55	58	.0	45	16	.5
19	7 07	14	.1	43	46	.0	06	10	.1	19	24	34	.2	54	58	.1	46	16	.5
20	7 07	15	.1	42	46	.1	05	11	.1	20	23	35	.2	53	59	.1	46	16	.5
21	6 06	16	.2	40	47	.1	04	11	.1	21	22	36	.2	53	00	.1	46	17	.5
22	6 06	18	.2	39	48	.2	02	12	.2	22	20	37	.3	52	01	.2	46	17	.5
23	5 05	19	.2	38	49	.2	01	13	.2	23	19	38	.3	51	02	.2	46	17	.5
24	5 05	20	.2	37	50	.2	5 59	14	.2	24	18	39	.4	51	02	.2	47	17	.5
25	4 04	20	.3	36	51	.3	58	15	.3	25	17	39	.4	50	03	.2	47	18	.5
26	4 04	21	.3	35	52	.3	57	15	.3	26	16	40	.4	50	04	.2	47	18	.5
27	3 03	22	.3	33	53	.3	55	16	.4	27	14	41	.4	49	04	.2	47	18	.5
28	3 03	23	.3	32	54	.4	54	17	.4	28	13	42	.5	49	05	.3	48	18	.5
29	2 02	24	.4	31	55	.4	52	18	.4	29	12	43	.5	48	06	.3	48	18	.5
30	01	26	.4	29	56	.4	51	19	.5	30	11	43	.5	48	07	.3	48	18	.5
31	00	27	.4	.....	.....	.....	50	19	.5	31	10	44	.6	47	07	.3	49	18	.5
	00	28	.5	.....	.....	.....	48	20	.5		.....	.....	.....	47	08	.4	.....	.....	.5
Total	.....	.....	313.3	.....	{ 28 d } { 29 d }	306.1 317.5	.....	.....	371.5	.....	.....	.....	392.5	.....	.....	434.1	.....	.....	434.2

LATITUDE 35° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

Date.	JULY.			AUGUST.			SEPTEMBER.			OCTOBER.			NOVEMBER.			DECEMBER.		
	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.
	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.
1	4 49	7 18	14.5	5 09	7 03	13.9	5 33	6 27	12.9	5 55	5 44	11.8	6 21	5 06	10.8	6 50	4 49	10.0
2	50	18	.5	10	02	.9	33	26	.9	56	43	.8	22	05	.7	51	48	.0
3	50	18	.5	11	01	.8	34	25	.8	56	42	.8	23	04	.7	51	48	9.9
4	51	18	.4	12	00	.8	35	23	.8	57	40	.7	24	03	.6	52	48	.9
5	51	17	.4	13	59	.8	35	22	.8	58	39	.7	25	02	.6	54	48	.9
6	52	17	.4	13	58	.8	36	20	.7	59	37	.6	26	02	.6	54	48	.9
7	52	17	.4	14	57	.7	37	19	.7	00	36	.6	27	01	.6	55	48	.9
8	53	17	.4	15	56	.7	38	17	.7	00	35	.6	28	00	.5	56	48	.9
9	53	17	.4	15	55	.7	38	16	.6	01	33	.5	29	59	.5	57	48	.9
10	54	16	.4	16	54	.6	39	14	.6	02	32	.5	30	58	.5	57	49	.9
11	54	16	.4	17	53	.6	40	13	.6	03	31	.5	31	58	.4	58	49	.8
12	55	16	.3	18	52	.6	41	12	.5	04	29	.4	32	57	.4	59	49	.8
13	56	15	.3	18	51	.5	41	10	.5	04	28	.4	33	56	.4	59	49	.8
14	56	15	.3	19	50	.5	42	09	.4	05	27	.4	34	55	.4	00	50	.8
15	57	14	.3	20	49	.5	43	07	.4	06	25	.3	35	54	.3	01	50	.8
16	58	14	.3	21	48	.4	44	06	.4	07	24	.3	36	54	.3	01	50	.8
17	58	13	.2	21	46	.4	44	04	.3	07	23	.3	37	53	.3	02	51	.8
18	59	13	.2	22	45	.4	45	03	.3	08	22	.2	38	53	.3	03	51	.8
19	00	12	.2	23	44	.4	46	02	.3	09	21	.2	39	52	.2	03	51	.8
20	01	12	.2	24	43	.3	46	00	.2	10	20	.2	40	52	.2	04	52	.8
21	02	12	.2	24	42	.3	47	59	.2	11	18	.1	40	52	.2	04	52	.8
22	02	11	.2	25	40	.3	48	57	.2	12	17	.1	42	51	.2	05	53	.8
23	03	10	.1	26	39	.2	49	56	.1	13	16	.0	43	50	.1	05	53	.8
24	03	09	.1	27	38	.2	50	54	.1	14	15	.0	44	50	.1	06	54	.8
25	04	09	.1	27	36	.2	50	53	.0	15	14	.0	45	50	.1	06	55	.8
26	05	08	.0	28	35	.1	51	52	.0	16	12	10.9	46	50	.1	06	55	.8
27	06	07	.0	29	34	.1	52	50	.0	16	11	.9	46	49	.0	07	56	.8
28	06	06	.0	30	32	.0	52	49	11.9	17	10	.9	47	49	.0	07	56	.8
29	07	05	.0	30	31	.0	53	47	.9	18	09	.8	48	49	.0	08	57	.8
30	08	05	13.9	31	30	.0	54	46	.9	19	08	.8	49	49	.0	08	58	.8
31	09	04	.9	32	28	12.9	.....	.....	.....	20	07	.8	.....	.....	.....	08	58	.8
Total	.....	.....	441.5	.....	.....	416.6	.....	.....	371.7	.....	.....	350.1	.....	.....	310.1	.....	.....	305.0

Total for the year, 4446.7. Total for leap year, 4458.1

LATITUDE 36° NORTH.
Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

Date.	JANUARY.			FEBRUARY.			MARCH.			Date.	APRIL.			MAY.			JUNE.		
	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.		Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.
	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.		Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.
1	7 11	4 57	9.8	7 01	5 27	10.4	6 30	5 55	11.4	1	5 46	6 22	12.6	5 07	6 47	13.7	4 44	7 11	14.5
2	11	57	.8	00	28	.5	29	56	.5	2	45	22	.6	06	48	.7	44	12	.5
3	11	58	.8	6 59	29	.5	27	57	.5	3	43	23	.7	05	49	.7	43	12	.5
4	12	59	.8	58	30	.5	26	58	.5	4	42	24	.7	04	49	.8	43	13	.5
5	12	5 00	.8	58	31	.6	25	58	.5	5	40	25	.7	03	50	.8	43	13	.5
6	12	01	.8	57	32	.6	24	59	.6	6	39	26	.8	02	51	.8	43	14	.5
7	12	02	.8	56	33	.6	22	00	.6	7	38	27	.8	01	52	.8	43	14	.5
8	12	02	.9	55	34	.7	21	01	.7	8	36	28	.9	00	53	.9	42	15	.5
9	11	03	.9	54	35	.7	19	02	.7	9	35	29	.9	4 59	54	.9	42	16	.6
10	11	04	.9	53	36	.7	18	03	.7	10	33	29	.9	58	54	.9	42	16	.6
11	11	05	.9	52	37	.8	17	04	.8	11	32	30	13.0	57	55	14.0	42	17	.6
12	11	06	.9	51	38	.8	15	05	.8	12	31	31	.0	56	56	.0	42	17	.6
13	11	07	.9	50	39	.8	14	06	.9	13	29	32	.0	55	57	.0	42	17	.6
14	11	08	10.0	49	40	.9	12	06	.9	14	28	32	.1	55	58	.0	42	18	.6
15	10	09	.0	47	41	.9	11	07	.9	15	27	33	.1	54	58	.1	42	18	.6
16	10	10	.0	46	42	.9	09	08	12.0	16	25	34	.1	53	59	.1	42	19	.6
17	10	11	.0	45	43	11.0	08	09	.0	17	24	35	.2	52	00	.1	42	19	.6
18	09	12	.0	44	44	.0	06	10	.1	18	23	36	.2	52	01	.2	43	19	.6
19	09	13	.1	43	45	.0	05	11	.1	19	22	37	.3	51	02	.2	43	20	.6
20	09	14	.1	42	46	.1	04	11	.1	20	20	38	.3	50	03	.2	43	20	.6
21	08	15	.1	40	47	.1	02	12	.2	21	19	38	.3	49	04	.2	43	20	.6
22	07	16	.1	39	48	.2	01	13	.2	22	18	39	.4	49	04	.3	43	20	.6
23	07	17	.2	38	49	.2	5 59	14	.3	23	16	40	.4	48	05	.3	44	20	.6
24	06	18	.2	37	50	.2	58	15	.3	24	15	41	.4	48	06	.3	44	21	.6
25	06	19	.2	36	51	.3	56	16	.3	25	14	42	.5	47	06	.3	44	21	.6
26	05	20	.2	34	52	.3	55	17	.4	26	13	43	.5	47	07	.3	44	21	.6
27	05	21	.3	33	53	.3	53	17	.4	27	12	43	.5	46	08	.4	45	21	.6
28	04	22	.3	32	54	.4	52	18	.4	28	10	44	.6	46	09	.4	45	21	.6
29	03	24	.3	30	55	.4	50	19	.5	29	09	45	.6	45	09	.4	46	21	.6
30	02	25	.4	.....	.....	.....	49	20	.5	30	08	46	.6	45	10	.4	46	21	.6
31	02	26	.4	.....	.....	.....	48	21	.5	31	.....	.....	.....	44	11	.4	.....	.....	.....
Total			310.9	{ 28 d 305.0 } { 29 d 316.4 }			{ ..... }			.....	393.7			.....			436.6		
										.....	437.2								

LATITUDE 36° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

Date.	JULY.			AUGUST.			SEPTEMBER.			OCTOBER.			NOVEMBER.			DECEMBER.		
	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.
	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.
1	4 46	7 21	14.6	5 07	7 05	14.0	5 32	6 28	12.9	5 55	5 44	11.8	6 23	5 04	10.7	6 52	4 46	9.9
2	4 47	7 21	.6	5 08	7 04	13.9	5 32	6 27	.9	5 56	43	.8	6 24	5 04	.7	6 53	45	.9
3	4 47	7 21	.6	5 08	7 04	.9	5 33	6 25	.9	5 57	41	.7	6 25	5 02	.6	6 54	45	.9
4	4 48	7 20	.5	5 09	7 02	.9	5 34	6 24	.8	5 57	40	.7	6 26	5 01	.6	6 55	45	.8
5	4 48	7 20	.5	5 10	7 01	.8	5 35	6 23	.8	5 58	38	.7	6 27	5 00	.6	6 56	45	.8
6	4 49	7 20	.5	5 11	7 00	.8	5 35	6 21	.8	5 59	37	.6	6 28	5 00	.5	6 57	45	.8
7	5 00	7 20	.5	5 12	6 59	.8	5 36	6 20	.7	6 00	36	.6	6 29	4 59	.5	6 58	45	.8
8	5 00	7 20	.5	5 13	6 58	.8	5 37	6 18	.7	6 01	34	.6	6 30	5 58	.5	6 59	45	.8
9	5 01	7 19	.5	5 13	6 57	.7	5 38	6 17	.6	6 02	33	.5	6 31	5 57	.4	6 59	45	.8
10	5 01	7 19	.5	5 14	6 56	.7	5 39	6 15	.6	6 03	31	.5	6 32	5 56	.4	7 00	46	.8
11	5 02	7 19	.5	5 15	6 55	.7	5 40	6 14	.6	6 03	30	.4	6 33	5 56	.4	7 01	46	.8
12	5 02	7 19	.4	5 16	6 54	.6	5 40	6 12	.5	6 04	29	.4	6 34	5 55	.4	7 02	46	.7
13	5 03	7 18	.4	5 17	6 53	.6	5 41	6 11	.5	6 05	27	.4	6 35	5 54	.3	7 02	46	.7
14	5 04	7 18	.4	5 17	6 52	.6	5 42	6 09	.5	6 06	26	.3	6 36	5 53	.3	7 03	47	.7
15	5 04	7 17	.4	5 18	6 50	.5	5 42	6 08	.4	6 07	25	.3	6 37	5 52	.3	7 04	47	.7
16	5 05	7 17	.4	5 19	6 49	.5	5 43	6 06	.4	6 08	23	.3	6 38	5 52	.2	7 04	47	.7
17	5 06	7 16	.3	5 20	6 48	.5	5 44	6 05	.3	6 09	22	.2	6 39	5 51	.2	7 05	48	.7
18	5 06	7 16	.3	5 20	6 47	.4	5 45	6 03	.3	6 09	21	.2	6 40	5 51	.2	7 06	48	.7
19	5 07	7 15	.3	5 21	6 46	.4	5 45	6 02	.3	6 10	20	.2	6 41	5 50	.2	7 06	48	.7
20	5 08	7 15	.3	5 22	6 44	.4	5 46	6 00	.2	6 11	18	.1	6 42	5 50	.1	7 07	49	.7
21	5 09	7 14	.3	5 23	6 43	.3	5 47	5 59	.2	6 12	17	.1	6 43	49	.1	7 07	49	.7
22	5 00	7 13	.2	5 24	6 42	.3	5 48	5 57	.2	6 13	16	.0	6 44	49	.1	7 08	50	.7
23	5 00	7 12	.2	5 25	6 40	.3	5 49	5 56	.1	6 14	15	.0	6 45	48	.0	7 08	50	.7
24	5 01	7 12	.2	5 25	6 39	.2	5 50	5 54	.1	6 15	13	.0	6 46	48	.0	7 09	51	.7
25	5 02	7 11	.2	5 26	6 38	.2	5 50	5 53	.0	6 16	12	10.9	6 47	47	.0	7 09	52	.7
26	5 02	7 10	.1	5 27	6 36	.2	5 51	5 51	.0	6 17	11	.9	6 48	47	.0	7 09	52	.7
27	5 03	7 09	.1	5 28	6 35	.1	5 52	5 50	.0	6 18	10	.9	6 49	47	.0	7 10	53	.7
28	5 04	7 08	.1	5 29	6 34	.1	5 53	49	11.9	6 19	09	.8	6 50	46	9.9	7 10	53	.7
29	5 05	7 08	.0	5 29	6 32	.0	5 54	47	.9	6 20	08	.8	6 51	46	.9	7 10	54	.7
30	5 05	7 07	.0	5 30	6 31	.0	5 54	46	.9	6 21	07	.8	6 52	46	.9	7 11	55	.7
31	5 06	7 06	.0	5 31	6 29	.0	.....	.....	.....	6 22	06	.7	.....	.....	.....	7 11	55	.7
Total	.....	.....	444.4	.....	.....	418.2	.....	.....	372.0	.....	.....	349.2	.....	.....	308.0	.....	.....	302.1

Total for the year, 4448.6. Total for leap year, 4460.0

LATITUDE 37° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

JANUARY.				FEBRUARY.				MARCH.				APRIL.				MAY.				JUNE.			
Date.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	Date.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	
1	Hrs. min. 7 14	Hrs. min. 4 54	Hrs. 9.7	Hrs. min. 7 03	Hrs. min. 5 25	Hrs. 10.4	1	Hrs. min. 5 46	Hrs. min. 6 22	Hrs. 12.6	Hrs. min. 5 05	Hrs. min. 6 49	Hrs. 13.7	Hrs. min. 4 41	Hrs. min. 7 14	Hrs. 14.5	2	14	.6	41	15	.6	
2	14	55	.7	02	26	.4	2	44	23	.6	4	50	.8	41	15	.6	3	15	.6	41	15	.6	
3	14	55	.7	01	27	.4	3	43	24	.7	4	50	.8	41	15	.6	4	15	.6	41	15	.6	
4	14	56	.7	00	28	.5	4	41	25	.7	5	51	.8	40	16	.6	5	16	.6	40	16	.6	
5	14	57	.7	6	29	.5	5	40	26	.8	6	52	.9	40	16	.6	6	16	.6	40	16	.6	
6	14	58	.7	58	30	.5	6	38	27	.8	7	53	.9	40	17	.6	7	17	.6	40	17	.6	
7	14	59	.7	57	31	.6	7	37	28	.8	8	54	.9	40	17	.6	8	17	.6	40	17	.6	
8	14	00	.8	56	32	.6	8	35	28	.9	9	55	.9	40	18	.6	9	18	.6	40	18	.6	
9	14	01	.8	55	33	.6	9	34	29	.9	10	56	14.0	39	19	.7	10	19	.7	39	19	.7	
10	14	02	.8	54	34	.7	10	32	30	.7	11	57	.0	39	19	.7	11	19	.7	39	19	.7	
11	14	03	.8	53	36	.7	11	31	31	.8	12	57	.0	39	20	.7	12	20	.7	39	20	.7	
12	14	04	.8	52	37	.7	12	30	32	.8	13	58	.1	39	20	.7	13	20	.7	39	20	.7	
13	13	05	.9	51	38	.8	13	28	33	.9	14	59	.1	39	20	.7	14	20	.7	39	20	.7	
14	13	06	.9	50	39	.8	14	27	34	.9	15	00	.1	39	21	.7	15	21	.7	39	21	.7	
15	13	07	.9	49	40	.8	15	26	34	.9	16	01	.2	39	21	.7	16	21	.7	39	21	.7	
16	12	08	.9	48	41	.9	16	24	35	.2	17	02	.2	39	22	.7	17	22	.7	39	22	.7	
17	12	09	.9	46	42	.9	17	23	36	.2	18	02	.2	39	22	.7	18	22	.7	39	22	.7	
18	12	10	10.0	45	43	11.0	18	22	37	.3	19	03	.2	40	22	.7	19	22	.7	40	22	.7	
19	11	11	.0	44	44	.0	19	20	38	.3	20	04	.3	40	22	.7	20	22	.7	40	22	.7	
20	11	12	.0	43	45	.0	20	19	39	.3	21	05	.3	40	23	.7	21	23	.7	40	23	.7	
21	10	13	.0	41	46	.1	21	17	40	.4	22	06	.3	40	23	.7	22	23	.7	40	23	.7	
22	10	14	.1	40	47	.1	22	16	41	.4	23	07	.3	40	23	.7	23	23	.7	40	23	.7	
23	09	15	.1	39	48	.2	23	15	42	.4	24	08	.4	41	24	.7	24	23	.7	41	24	.7	
24	09	16	.1	38	49	.2	24	14	43	.5	25	08	.4	41	24	.7	25	24	.7	41	24	.7	
25	08	17	.2	36	50	.2	25	12	43	.5	26	09	.4	41	24	.7	26	24	.7	41	24	.7	
26	07	18	.2	35	51	.3	26	11	44	.6	27	10	.4	41	24	.7	27	24	.7	41	24	.7	
27	07	19	.2	34	52	.3	27	10	45	.6	28	10	.4	42	24	.7	28	24	.7	42	24	.7	
28	06	20	.2	32	53	.3	28	09	46	.6	29	11	.5	42	24	.7	29	24	.7	42	24	.7	
29	05	22	.3	31	54	.4	29	07	47	.7	30	12	.5	42	24	.7	30	24	.7	43	24	.7	
30	04	23	.3	.....	.....	.....	30	06	48	.7	31	13	.5	42	24	.7	31	24	.7	43	24	.7
31	04	24	.3	.....	.....	.6	31	.....	.....	.....	.....	14	.5	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total			308.4	{ 28 d } { 29 d }			371.4	{ } { }			394.8	{ } { }			439.0	{ } { }			440.1	{ } { }			

LATITUDE 37° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

Date.	JULY.			AUGUST.			SEPTEMBER.			OCTOBER.			NOVEMBER.			DECEMBER.		
	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.
	<i>Hrs. min.</i>	<i>Hrs. min.</i>	<i>Hrs.</i>	<i>Hrs. min.</i>	<i>Hrs. min.</i>	<i>Hrs.</i>	<i>Hrs. min.</i>	<i>Hrs. min.</i>	<i>Hrs.</i>	<i>Hrs. min.</i>	<i>Hrs. min.</i>	<i>Hrs.</i>	<i>Hrs. min.</i>	<i>Hrs. min.</i>	<i>Hrs.</i>	<i>Hrs. min.</i>	<i>Hrs. min.</i>	<i>Hrs.</i>
1	4 43	7 24	14.7	5 05	7 07	14.0	5 31	6 29	13.0	5 56	5 44	11.8	6 24	5 03	10.6	6 55	4 43	9.8
2	4 44	7 24	.7	5 06	6 06	.0	5 31	6 28	12.9	5 56	4 42	.8	6 26	5 02	.6	6 56	4 43	.8
3	4 44	7 24	.7	5 06	6 06	.0	5 32	6 26	.9	5 57	4 41	.7	6 27	5 01	.6	6 57	4 43	.8
4	4 45	7 23	.6	5 07	6 04	.0	5 33	6 25	.9	5 58	3 39	.7	6 28	5 00	.5	6 58	4 43	.7
5	4 46	7 23	.6	5 08	6 03	13.9	5 34	6 23	.8	5 59	3 38	.6	6 29	4 59	.5	6 59	4 43	.7
6	4 46	7 23	.6	5 09	6 02	.9	5 35	6 22	.8	6 00	3 36	.6	7 00	5 58	.5	7 00	4 43	.7
7	4 47	7 23	.6	5 10	6 01	.9	5 36	6 20	.7	6 01	3 35	.6	7 00	5 57	.4	7 00	4 43	.7
8	4 47	7 23	.6	5 11	6 00	.8	5 36	6 19	.7	6 02	3 33	.5	7 01	5 56	.4	7 01	4 43	.7
9	4 48	7 22	.6	5 12	6 59	.8	5 37	6 17	.7	6 03	3 32	.5	7 02	5 55	.4	7 02	4 43	.7
10	4 48	7 22	.6	5 12	6 58	.8	5 38	6 16	.6	6 03	3 31	.5	7 03	5 54	.3	7 03	4 43	.7
11	4 49	7 22	.5	5 13	6 57	.7	5 39	6 14	.6	6 04	2 29	.4	7 04	5 54	.3	7 04	4 43	.7
12	4 49	7 21	.5	5 14	6 56	.7	5 40	6 13	.6	6 05	2 28	.4	7 04	5 53	.3	7 04	4 43	.7
13	5 00	7 21	.5	5 15	6 55	.7	5 40	6 11	.5	6 06	2 26	.3	7 05	5 52	.2	7 05	4 43	.6
14	5 01	7 20	.5	5 16	6 53	.6	5 41	6 10	.5	6 07	2 25	.3	7 06	5 51	.2	7 06	4 44	.6
15	5 02	7 20	.5	5 16	6 52	.6	5 42	6 08	.4	6 08	2 24	.3	7 07	5 50	.2	7 07	4 44	.6
16	5 02	7 19	.4	5 17	6 51	.6	5 43	6 07	.4	6 09	2 22	.2	7 07	5 50	.2	7 07	4 44	.6
17	5 03	7 19	.4	5 18	6 50	.5	5 44	6 05	.4	6 10	2 21	.2	7 08	5 49	.1	7 08	4 45	.6
18	5 04	7 18	.4	5 19	6 48	.5	5 45	6 04	.3	6 11	2 20	.1	7 09	5 49	.1	7 09	4 45	.6
19	5 05	7 18	.4	5 20	6 47	.4	5 45	6 02	.3	6 11	1 19	.1	7 09	5 48	.1	7 09	4 45	.6
20	5 06	7 17	.4	5 21	6 46	.4	5 46	6 00	.2	6 13	1 17	.1	7 10	5 47	.0	7 10	4 46	.6
21	5 06	7 16	.3	5 22	6 44	.4	5 47	5 59	.2	6 14	1 16	.0	7 10	5 47	.0	7 10	4 46	.6
22	5 07	7 16	.3	5 22	6 43	.3	5 48	5 58	.2	6 14	1 15	.0	7 11	5 46	.0	7 11	4 47	.6
23	5 08	7 15	.3	5 23	6 42	.3	5 49	5 56	.1	6 15	1 13	.0	7 11	5 46	.0	7 11	4 47	.6
24	5 08	7 14	.3	5 24	6 40	.3	5 50	5 54	.1	6 16	1 12	10.9	7 12	5 45	9.9	7 12	4 48	.6
25	5 09	7 13	.2	5 25	6 39	.2	5 50	5 53	.0	6 17	1 11	.9	7 12	5 45	.9	7 12	4 49	.6
26	5 00	7 12	.2	5 26	6 38	.2	5 51	5 51	.0	6 18	1 10	.9	7 12	5 45	.9	7 12	4 49	.6
27	5 01	7 12	.2	5 27	6 36	.2	5 52	5 50	.0	6 19	1 08	.8	7 13	5 44	.9	7 13	4 50	.6
28	5 02	7 11	.2	5 27	6 35	.1	5 53	5 48	11.9	6 20	1 07	.8	7 13	5 44	.9	7 13	4 50	.6
29	5 02	7 10	.1	5 28	6 34	.1	5 54	5 47	.9	6 21	1 06	.7	7 13	5 44	.8	7 13	4 51	.6
30	5 03	7 09	.1	5 29	6 32	.1	5 54	5 45	.8	6 23	1 05	.7	7 13	5 44	.8	7 13	4 52	.6
31	5 04	7 08	.1	5 30	6 31	.0	.....	.....	.....	6 24	1 04	.7	.....	.....	.....	7 14	4 52	.7
Total	.....	.....	447.1	.....	.....	420.0	.....	.....	372.4	.....	.....	348.1	.....	.....	305.6	.....	.....	299.2

Total for the year, 4449.6. Total for leap year, 4461.0

LATITUDE 38° NORTH.
Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

JANUARY.				FEBRUARY.				MARCH.				APRIL.				MAY.				JUNE.			
Date.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.		
1	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.		
2	7 17	4 51	9.6	7 05	5 23	10.3	6 32	5 53	11.4	1	5 45	6 23	12.6	5 03	6 51	13.8	4 38	7 17	14.6				
3	17 17	5 52	.6	04 04	24 24	.3	30 30	54 54	.4	2	44 44	24 24	.7	02 02	51 51	.8	38 38	18 18	.7				
4	17 17	5 53	.6	03 03	25 25	.4	29 29	55 55	.4	3	42 42	25 25	.7	01 01	52 52	.9	38 38	18 18	.7				
5	17 17	5 54	.6	02 02	26 26	.4	28 28	56 56	.5	4	40 40	26 26	.8	00 00	53 53	.9	38 38	19 19	.7				
6	17 17	5 54	.6	01 01	27 27	.4	26 26	57 57	.5	5	39 39	27 27	.8	4 59	54 54	.9	37 37	19 19	.7				
7	17 17	5 55	.6	00 00	29 29	.5	25 25	58 58	.6	6	37 37	27 27	.8	58 58	55 55	.9	37 37	20 20	.7				
8	17 17	5 56	.7	59 59	30 30	.5	23 23	59 59	.6	7	36 36	28 28	.9	57 57	56 56	14.0	37 37	20 20	.7				
9	17 17	5 57	.7	58 58	31 31	.5	22 22	6 00	.6	8	34 34	29 29	.9	56 56	58 58	.0	37 37	21 21	.7				
10	17 17	5 58	.7	57 57	32 32	.6	20 20	01 01	.7	9	33 33	30 30	13.0	55 55	58 58	.1	36 36	22 22	.7				
11	17 17	5 59	.7	56 56	33 33	.6	19 19	02 02	.7	10	32 32	31 31	.0	54 54	59 59	.1	36 36	22 22	.8				
12	16 16	5 00	.7	55 55	34 34	.7	17 17	03 03	.8	11	30 30	32 32	.0	53 53	7 00	.1	36 36	23 23	.8				
13	16 16	5 01	.7	54 54	35 35	.7	16 16	04 04	.8	12	29 29	33 33	.1	52 52	01 01	.1	36 36	23 23	.8				
14	16 16	5 02	.8	53 53	36 36	.7	14 14	05 05	.9	13	27 27	34 34	.1	51 51	02 02	.2	36 36	23 23	.8				
15	16 16	5 03	.8	51 51	37 37	.8	13 13	06 06	.9	14	26 26	35 35	.1	50 50	02 02	.2	36 36	24 24	.8				
16	15 15	5 04	.8	50 50	38 38	.8	11 11	07 07	.9	15	24 24	36 36	.2	49 49	03 03	.2	36 36	24 24	.8				
17	15 15	5 05	.8	49 49	40 40	.8	10 10	08 08	12.0	16	23 23	37 37	.2	48 48	04 04	.3	36 36	25 25	.8				
18	15 15	5 06	.9	48 48	41 41	.9	08 08	09 09	.0	17	21 21	38 38	.3	48 48	05 05	.3	36 36	25 25	.8				
19	14 14	5 07	.9	46 46	42 42	.9	06 06	10 10	.1	18	20 20	38 38	.3	47 47	06 06	.3	37 37	25 25	.8				
20	14 14	5 08	.9	45 45	43 43	11.0	05 05	11 11	.1	19	19 19	39 39	.3	46 46	07 07	.3	37 37	26 26	.8				
21	13 13	5 09	.9	44 44	44 44	.0	04 04	12 12	.1	20	18 18	40 40	.4	45 45	08 08	.4	37 37	26 26	.8				
22	13 13	5 11	10.0	43 43	45 45	.0	02 02	13 13	.2	21	16 16	41 41	.4	44 44	08 08	.4	37 37	26 26	.8				
23	12 12	5 12	.0	41 41	46 46	.1	00 00	13 13	.2	22	15 15	42 42	.5	44 44	09 09	.4	37 37	26 26	.8				
24	11 11	5 13	.0	40 40	47 47	.1	5 59	14 14	.3	23	13 13	43 43	.5	43 43	10 10	.4	38 38	26 26	.8				
25	11 11	5 14	.1	39 39	48 48	.2	57 57	15 15	.3	24	12 12	44 44	.5	43 43	11 11	.5	38 38	27 27	.8				
26	10 10	5 15	.1	37 37	49 49	.2	56 56	16 16	.3	25	11 11	45 45	.6	42 42	12 12	.5	38 38	27 27	.8				
27	09 09	5 16	.1	36 36	50 50	.2	54 54	17 17	.4	26	09 09	46 46	.6	41 41	12 12	.5	38 38	27 27	.8				
28	09 09	5 17	.1	35 35	51 51	.3	53 53	18 18	.4	27	08 08	47 47	.6	41 41	13 13	.5	39 39	27 27	.8				
29	08 08	5 18	.2	33 33	52 52	.3	51 51	19 19	.5	28	07 07	48 48	.7	40 40	14 14	.6	39 39	27 27	.8				
30	07 07	5 19	.2	32 32	53 53	.4	50 50	20 20	.5	29	06 06	49 49	.7	40 40	15 15	.6	40 40	27 27	.8				
31	06 06	5 21	.2	.....	.....	.....	48 48	21 21	.5	30	05 05	50 50	.8	39 39	16 16	.6	40 40	27 27	.8		
	06 06	5 22	.3	.....	.....	.....	47 47	22 22	.6	31	.....	.....	.....	39 39	16 16	.6	.....	.....	.....	
Total	.....	.....	305.9	.....	{ 28 d } { 29 d }	302.2 313.6	.....	.....	371.2	.....	.....	.....	396.1	.....	.....	441.4	.....	.....	443.0		

LATITUDE 38° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

Date.	JULY.			AUGUST.			Date.	SEPTEMBER.			OCTOBER.			NOVEMBER.			DECEMBER.		
	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.		Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.
1	Hrs. min. 4 40	Hrs. min. 7 27	Hrs. 14.8	Hrs. min. 5 03	Hrs. min. 7 10	Hrs. 14.1	1	Hrs. min. 5 56	Hrs. min. 5 43	Hrs. 11.8	Hrs. min. 6 26	Hrs. min. 5 01	Hrs. 10.6	Hrs. min. 6 58	Hrs. min. 4 41	Hrs. 9.7			
2	41	27	.8	03	09	.1	2	57	42	.8	27	00	.6	59	40	.7			
3	42	26	.7	04	08	.1	3	57	41	.7	28	59	.5	7	40	.7			
4	42	26	.7	05	07	.0	4	58	39	.7	29	58	.5	00	40	.7			
5	43	26	.7	06	05	.0	5	59	37	.6	30	57	.4	01	40	.6			
6	43	26	.7	07	04	.0	6	6	36	.6	31	56	.4	02	40	.6			
7	44	26	.7	08	03	13.9	7	35	34	.6	32	55	.4	03	40	.6			
8	44	25	.7	09	02	.9	8	36	33	.5	34	54	.3	04	40	.6			
9	45	25	.7	10	01	.9	9	36	31	.5	35	52	.3	05	40	.6			
10	45	25	.7	10	00	.8	10	37	30	.4	36	52	.3	06	41	.6			
11	46	24	.6	11	59	.8	11	38	29	.4	37	51	.2	06	41	.6			
12	47	24	.6	12	58	.8	12	39	27	.4	38	51	.2	07	41	.6			
13	47	24	.6	13	56	.7	13	40	26	.3	39	50	.2	08	41	.5			
14	48	23	.6	14	55	.7	14	41	24	.3	40	49	.2	09	41	.5			
15	49	23	.6	15	54	.6	15	42	23	.2	41	48	.1	09	42	.5			
16	50	22	.5	16	53	.6	16	42	21	.2	42	48	.1	10	42	.5			
17	50	21	.5	16	51	.6	17	43	20	.2	43	47	.1	11	42	.5			
18	51	21	.5	17	50	.5	18	44	19	.1	44	46	.0	11	43	.5			
19	52	20	.5	18	48	.5	19	45	17	.1	45	46	.0	12	43	.5			
20	53	20	.5	19	47	.5	20	46	16	.0	47	45	.0	13	43	.5			
21	54	19	.4	20	46	.4	21	47	15	.0	48	44	.9	13	44	.5			
22	54	18	.4	21	44	.4	22	48	13	.0	49	44	.9	14	44	.5			
23	55	17	.4	22	43	.4	23	48	12	10.9	50	43	.9	14	45	.5			
24	56	17	.3	23	42	.3	24	49	11	.9	51	43	.9	14	46	.5			
25	57	16	.3	23	40	.3	25	50	9	.8	52	43	.8	15	46	.5			
26	58	15	.3	24	39	.2	26	51	8	.8	53	42	.8	15	47	.5			
27	59	14	.3	25	37	.2	27	52	50	.0	54	42	.8	16	47	.5			
28	59	13	.2	26	36	.2	28	53	48	11.9	55	42	.8	16	48	.5			
29	5	12	.2	27	35	.1	29	54	47	.9	56	41	.8	16	49	.5			
30	01	12	.2	28	33	.1	30	55	45	.8	57	41	.7	16	50	.6			
31	02	11	.1	29	32	.0	31		45	.6				17	50	.6			
Total			449.8			421.7				372.9			347.3			303.7			296.3

Total for the year, 4451.5.

Total for leap year, 4469.2

LATITUDE 39° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

Date.	JANUARY.			FEBRUARY.			MARCH.			APRIL.			MAY.			JUNE.			
	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	
1	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	
2	7 20	4 48	9.5	7 07	5 21	10.2	6 33	5 52	11.3	5 44	6 23	12.6	5 02	6 52	13.8	4 35	7 20	14.7	
3	20 20	49	.5	06	22	.3	31	54	.4	43	24	.7	00	53	.9	35	20	.8	
4	20 20	50	.5	05	24	.3	30	55	.4	41	25	.7	4	59	.9	35	21	.8	
5	20 20	51	.5	04	25	.3	28	56	.5	40	26	.8	58	55	14.0	35	22	.8	
6	20 20	52	.5	03	26	.4	27	56	.5	38	27	.8	57	56	.0	34	22	.8	
7	20 20	53	.5	02	27	.4	25	58	.5	37	28	.9	56	57	.0	34	23	.8	
8	20 19	54	.6	01	28	.5	24	59	.6	35	29	.9	55	58	.0	34	23	.8	
9	19 19	55	.6	00	29	.5	22	00	.6	33	30	13.0	54	00	.1	34	24	.8	
10	19 19	55	.6	6 59	30	.5	20	01	.7	32	31	.0	52	00	.1	34	24	.8	
11	19 19	56	.6	58	31	.6	19	02	.7	31	32	.0	52	01	.2	33	25	.9	
12	19 19	57	.6	57	32	.6	18	03	.8	29	33	.1	51	02	.2	33	25	.9	
13	19 19	58	.7	55	34	.6	16	04	.8	27	34	.1	50	03	.2	33	26	.9	
14	18 18	00	.7	54	35	.7	14	05	.8	26	35	.2	49	04	.3	33	26	.9	
15	18 18	01	.7	53	36	.7	13	06	.9	25	36	.2	48	05	.3	33	27	.9	
16	18 18	02	.7	52	37	.8	11	07	.9	23	37	.2	47	06	.3	33	27	.9	
17	17 17	03	.8	50	38	.8	10	08	12.0	22	38	.3	46	06	.3	33	28	.9	
18	17 17	04	.8	49	39	.8	08	09	.0	20	39	.3	45	07	.4	33	28	.9	
19	16 16	05	.8	48	41	.9	06	10	.1	19	40	.3	44	08	.4	34	28	.9	
20	16 16	06	.8	46	42	.9	05	11	.1	18	41	.4	44	09	.4	34	28	.9	
21	15 15	07	.9	45	43	11.0	03	12	.1	16	42	.4	43	10	.5	34	29	.9	
22	15 15	08	.9	44	44	.0	02	13	.2	15	43	.5	42	11	.5	34	29	.9	
23	14 14	09	.9	42	45	.0	00	14	.2	13	44	.5	41	12	.5	34	29	.9	
24	14 14	11	10.0	41	46	.1	5 59	14	.3	12	45	.6	41	12	.5	35	29	.9	
25	13 13	12	.0	40	47	.1	57	15	.3	11	46	.6	40	13	.6	35	30	.9	
26	12 12	13	.0	38	48	.2	56	16	.4	09	47	.6	39	14	.6	35	30	.9	
27	12 12	14	.0	37	49	.2	54	18	.4	08	48	.7	39	15	.6	35	30	.9	
28	11 11	15	.1	36	50	.2	52	19	.4	07	48	.7	38	16	.6	36	30	.9	
29	10 10	16	.1	34	51	.3	51	20	.5	05	49	.7	37	17	.7	36	30	.9	
30	09 09	17	.1	33	52	.3	49	21	.5	04	50	.8	37	18	.7	37	30	.9	
31	08 08	19	.2	.....	.....	.....	48	22	.6	03	52	.8	36	18	.7	37	30	.9
Total			303.4	{ 28 d 300.9 } { 29 d 312.2 }					371.1		
										397.4							446.0		

LATITUDE 39° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

JULY.				AUGUST.			SEPTEMBER.			OCTOBER.			NOVEMBER.			DECEMBER.		
Date.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.
	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.
1	4 38	7 30	14.9	5 00	7 12	14.2	5 29	6 31	13.0	5 56	5 43	11.8	6 28	5 00	10.5	7 00	4 38	9.6
2	38	29	.9	01	11	.2	30	29	.0	57	42	.7	29	4 59	.5	01	38	.6
3	39	29	.8	02	10	.1	30	28		58	40	.7	30	57	.5	02	38	.6
4	39	29	.8	03	09	.1	31	26	12.9	59	39	.7	31	56	.4	03	38	.6
5	40	29	.8	04	07	.1	32	25	.9	6 00	37	.6	32	55	.4	04	38	.6
6	40	29	.8	05	06	.0	33	23	.8	01	35	.6	33	54	.4	05	38	.5
7	41	28	.8	06	05	.0	34	22	.8	02	34	.5	34	53	.3	06	38	.5
8	41	28	.8	07	04	.0	35	20	.8	03	32	.5	35	52	.3	07	38	.5
9	42	28	.8	08	03	13.9	36	19	.7	04	31	.4	37	50	.2	08	38	.5
10	43	28	.8	08	02	.9	37	17	.7	05	29	.4	38	50	.2	09	38	.5
11	43	27	.7	09	01	.9	38	15	.6	06	28	.4	39	49	.2	09	38	.5
12	44	27	.7	10	59	.8	39	14	.6	07	26	.3	40	49	.1	10	38	.5
13	45	26	.7	11	58	.8	40	12	.5	08	25	.3	41	48	.1	11	38	.5
14	45	26	.7	12	57	.7	40	11	.5	09	23	.2	42	47	.1	12	38	.4
15	46	25	.6	13	56	.7	41	09	.5	10	22	.2	43	46	.0	12	39	.4
16	47	25	.6	14	54	.7	42	07	.4	11	20	.2	44	45	.0	13	39	.4
17	48	24	.6	15	53	.6	43	06	.4	12	19	.1	46	45	.0	14	39	.4
18	49	23	.6	16	51	.6	44	04	.3	13	18	.1	47	44	.0	14	40	.4
19	49	23	.6	17	50	.6	45	02	.3	14	16	.0	48	43	9.9	15	40	.4
20	50	22	.5	18	49	.5	46	01	.2	15	15	.0	49	43	.9	16	40	.4
21	51	22	.5	19	47	.5	47	59	.2	16	14	.0	50	42	.9	16	41	.4
22	52	21	.5	20	46	.4	48	58	.2	17	12	10.9	51	42	.8	16	41	.4
23	53	20	.5	21	44	.4	48	56	.1	18	11	.9	52	41	.8	17	42	.4
24	53	19	.4	21	43	.4	49	55	.1	19	10	.8	53	41	.8	17	43	.4
25	54	18	.4	22	42	.3	50	53	.0	20	08	.8	54	40	.8	18	43	.4
26	55	17	.4	23	40	.3	51	51	.0	21	07	.8	55	40	.7	18	44	.4
27	56	16	.3	24	39	.2	52	50	.0	22	06	.7	56	39	.7	18	44	.4
28	57	16	.3	25	37	.2	53	48	11.9	23	04	.7	57	39	.7	19	45	.4
29	58	15	.3	26	36	.2	54	46	.9	24	03	.6	58	39	.7	19	46	.4
30	59	14	.3	27	34	.1	55	45	.8	26	02	.6	59	38	.6	19	47	.5
31	59	13	.2	28	33	.1		45		27	01	.6				19	47	.5
Total			452.6			423.5			373.1			346.1			301.5			293.4

Total for the year, 4453.0. Total for leap year, 4464.3

LATITUDE 40° NORTH.
Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

JANUARY.				FEBRUARY.				MARCH.				APRIL.				MAY.				JUNE.				
Date.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.			
1	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.			
1	7 22	4 46	9.4	7 09	5 19	10.2	6 33	5 52	11.3	5 44	6 24	12.7	5 00	6 54	13.9	4 33	7 23	13.9	4 33	7 23	13.9			
2	22	46	.4	08	20	.2	32	53	.4	42	25	.7	4 59	55	.9	32	23	.9	32	23	.8			
3	22	47	.4	06	22	.2	30	54	.4	40	26	.8	57	56	14.0	32	24	.9	32	24	.9			
4	22	48	.4	06	23	.3	29	55	.4	39	27	.8	56	57	.0	32	24	.9	32	24	.9			
5	22	49	.4	05	24	.3	27	56	.5	37	28	.8	55	58	.0	32	25	.9	32	25	.9			
6	22	50	.5	04	25	.4	26	57	.5	36	29	.9	54	59	.1	31	26	.9	31	26	.9			
7	22	51	.5	03	26	.4	24	58	.6	34	30	.9	53	00	.1	31	26	.9	31	26	.9			
8	22	52	.5	01	27	.4	22	59	.6	33	31	13.0	52	01	.2	31	27	.9	31	27	.9			
9	22	53	.5	00	29	.5	21	00	.7	31	32	.0	50	02	.2	31	27	.9	31	27	.9			
10	22	54	.5	6 59	30	.5	19	01	.7	30	33	.1	49	03	.2	30	28	15.0	30	28	15.0			
11	22	55	.6	58	31	.6	18	02	.7	28	34	.1	48	04	.3	30	28	.0	30	28	.0			
12	21	56	.6	57	32	.6	16	04	.8	26	35	.1	47	05	.3	30	29	.0	30	29	.0			
13	21	57	.6	56	33	.6	14	05	.8	25	36	.2	46	06	.3	30	29	.0	30	29	.0			
14	20	58	.6	54	34	.7	13	06	.9	23	37	.2	45	07	.4	30	30	.0	30	30	.0			
15	20	59	.7	53	36	.7	12	06	.9	22	38	.3	44	08	.4	30	30	.0	30	30	.0			
16	20	00	.7	52	37	.8	10	08	12.0	20	39	.3	44	09	.4	30	31	.0	30	31	.0			
17	19	01	.7	50	38	.8	08	09	.0	19	40	.4	43	10	.4	30	31	.0	30	31	.0			
18	19	03	.7	49	39	.8	06	10	.1	18	41	.4	42	11	.5	31	31	.0	31	31	.0			
19	18	04	.8	48	40	.9	05	11	.1	16	42	.4	41	12	.5	31	32	.0	31	32	.0			
20	18	05	.8	46	42	.9	03	12	.1	15	43	.5	40	13	.5	31	32	.0	31	32	.0			
21	17	06	.8	45	43	11.0	02	13	.2	13	44	.5	39	14	.6	31	32	.0	31	32	.0			
22	17	07	.8	43	44	.0	00	14	.2	12	45	.6	39	14	.6	31	32	.0	31	32	.0			
23	16	08	.9	42	45	.0	59	14	.3	10	46	.6	38	15	.6	32	32	.0	32	32	.0			
24	15	10	.9	40	46	.1	57	16	.3	09	47	.6	37	16	.6	32	33	.0	32	33	.0			
25	15	11	.9	39	47	.1	55	17	.4	08	48	.7	37	17	.7	32	33	.0	32	33	.0			
26	14	12	10.0	38	48	.2	54	18	.4	06	49	.7	36	18	.7	32	33	.0	32	33	.0			
27	13	13	.0	37	49	.2	52	19	.5	05	50	.8	35	18	.7	33	33	.0	33	33	.0			
28	12	14	.0	35	50	.3	50	20	.5	04	51	.8	35	19	.7	33	33	.0	33	33	.0			
29	11	15	.1	33	52	.3	49	21	.5	02	52	.8	34	20	.8	34	33	.0	34	33	.0			
30	10	17	.1	.....	.....	.....	47	22	.6	01	53	.9	34	21	.8	34	33	.0	34	33	.0			
31	10	18	.1	.....	.....	.....	46	23	.6	.....	.....	.....	33	22	.8	.....	.....	.....	.....	.....	.....
Total			300.9	{ 28 d } { 29 d }			{ } { }			{ } { }			{ } { }			{ } { }			{ } { }			{ } { }		
				
				
				
				
				
				
				
				
				
				
				
				
				
				
				
				
				
				
				
				
				
				
				
				
				
				
				
				
				
				
				
				
				
				
				
				
				
				
				
																			

LATITUDE 40° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

JULY.				AUGUST.				SEPTEMBER.				OCTOBER.				NOVEMBER.				DECEMBER.			
Date.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.		
1	Hrs. min. 4 35	Hrs. min. 7 33	Hrs. 15.0	Hrs. min. 4 58	Hrs. min. 7 14	Hrs. 14.3	Hrs. min. 5 28	Hrs. min. 6 32	Hrs. 13.1	Hrs. min. 5 56	Hrs. min. 5 43	Hrs. 11.8	Hrs. min. 6 29	Hrs. min. 4 58	Hrs. 10.5	Hrs. min. 7 03	Hrs. min. 4 35	Hrs. 9.5	Hrs. min. 7 03	Hrs. min. 4 35	Hrs. 9.5		
2	35	32	.0	59	13	.2	29	30	.0	57	41	.7	30	57	.4	04	35	.5	04	35	.5		
3	36	32	14.9	5 00	12	.2	30	29	.0	58	40	.7	32	56	.4	05	35	.5	05	35	.5		
4	36	32	.9	01	11	.2	30	27	.0	59	38	.6	33	54	.4	06	35	.5	06	35	.5		
5	37	32	.9	02	10	.1	31	26	12.9	6 00	36	.6	34	53	.3	07	35	.5	07	35	.5		
6	37	32	.9	03	08	.1	32	24	.9	01	35	.6	35	52	.3	08	35	.5	08	35	.5		
7	38	31	.9	04	07	.1	34	22	.8	02	34	.5	36	52	.3	09	35	.4	09	35	.4		
8	38	31	.9	05	06	.0	34	21	.8	03	32	.5	37	50	.2	10	35	.4	10	35	.4		
9	39	31	.9	06	05	.0	35	19	.7	04	30	.4	39	49	.2	10	35	.4	10	35	.4		
10	40	30	.8	07	04	.0	36	17	.7	05	29	.4	40	48	.1	11	35	.4	11	35	.4		
11	40	30	.8	08	02	13.9	37	16	.6	06	27	.4	41	47	.1	12	35	.4	12	35	.4		
12	41	30	.8	09	01	.9	38	14	.6	08	25	.3	42	47	.1	13	35	.4	13	35	.4		
13	42	29	.8	10	00	.8	39	12	.6	09	24	.2	43	46	.0	14	35	.4	14	35	.4		
14	43	28	.8	10	59	.8	40	11	.5	10	22	.2	44	45	.0	14	35	.4	14	35	.4		
15	44	28	.7	11	57	.8	41	10	.5	11	21	.2	45	44	.0	15	36	.3	15	36	.3		
16	44	27	.7	12	56	.7	42	08	.4	12	19	.1	47	43	9.9	16	36	.3	16	36	.3		
17	45	27	.7	13	54	.7	43	06	.4	13	18	.1	48	42	.9	17	36	.3	17	36	.3		
18	46	26	.7	14	53	.6	44	04	.3	14	16	.0	49	42	.9	17	37	.3	17	37	.3		
19	47	25	.6	15	52	.6	45	02	.3	15	15	.0	50	41	.8	18	37	.3	18	37	.3		
20	48	25	.6	16	50	.6	46	01	.2	16	14	.0	51	40	.8	18	37	.3	18	37	.3		
21	48	24	.6	17	49	.5	47	59	.2	17	12	10.9	52	40	.8	19	38	.3	19	38	.3		
22	49	23	.6	18	47	.5	48	58	.2	18	11	.9	53	39	.8	19	38	.3	19	38	.3		
23	50	22	.5	19	46	.4	48	56	.1	19	10	.8	54	39	.7	20	39	.3	20	39	.3		
24	51	22	.5	20	44	.4	49	55	.1	20	08	.8	56	38	.7	20	40	.3	20	40	.3		
25	52	21	.5	21	43	.4	50	53	.0	22	07	.8	57	38	.7	21	40	.3	21	40	.3		
26	53	20	.4	22	41	.3	51	51	.0	23	06	.7	58	37	.7	21	41	.3	21	41	.3		
27	54	19	.4	23	40	.3	52	50	.0	24	04	.7	59	37	.6	21	41	.3	21	41	.3		
28	54	18	.4	24	38	.2	53	48	11.9	25	03	.6	7 00	36	.6	22	42	.3	22	42	.3		
29	55	17	.4	24	37	.2	54	46	.9	26	02	.6	01	36	.6	22	43	.4	22	43	.4		
30	56	16	.3	26	35	.2	55	45	.8	27	00	.6	02	36	.6	22	44	.4	22	44	.4		
31	57	15	.3	27	34	.1	.....	.....	.....	28	4 59	.5	.....	.....	.....	22	44	.4	22	44	.4
Total	.....	.....	455.2	.....	.....	425.1	.....	.....	373.5	.....	.....	345.2	.....	.....	299.4	.....	.....	290.6	.....	.....	290.6

Total for the year, 4454.3. Total for leap year, 4465.6



W. B. No. 805.

U. S. DEPARTMENT OF AGRICULTURE,
WEATHER BUREAU.

SUNSHINE TABLES,

EDITION OF 1905,

[REPRINTED]

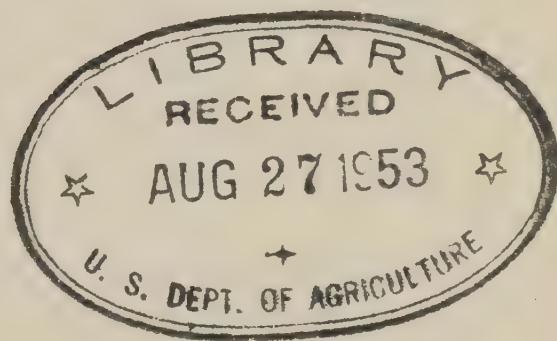
GIVING

THE TIMES OF SUNRISE AND SUNSET IN MEAN SOLAR
TIME AND THE TOTAL DURATION OF SUNSHINE
FOR EVERY DAY IN THE YEAR, LATI-
TUDES 20° TO 50° NORTH.

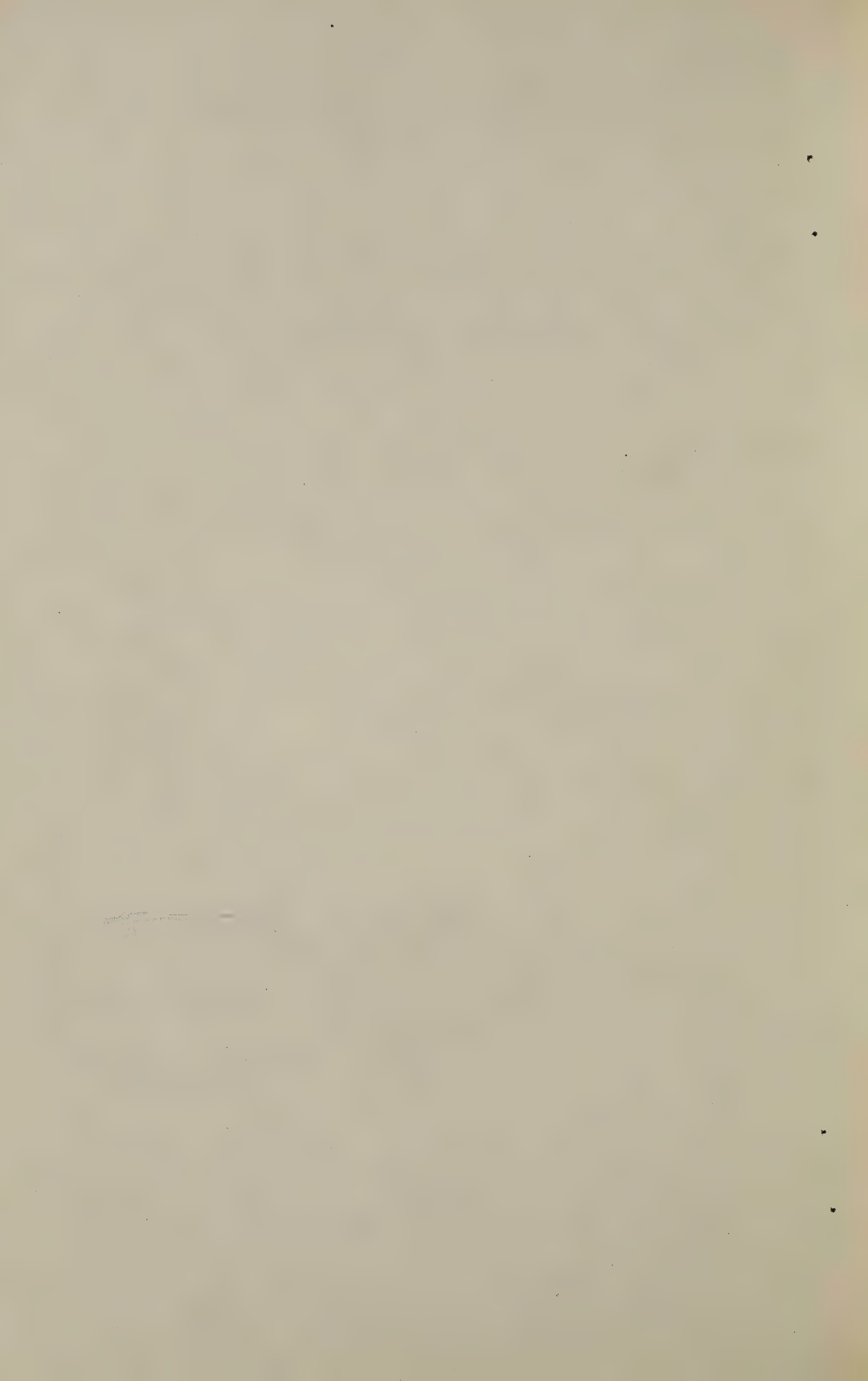
PART III.

LATITUDE 40° TO 50° NORTH.

By C. F. MARVIN.



WASHINGTON:
GOVERNMENT PRINTING OFFICE,
1923.



SUNSHINE TABLES.

(Edition 1905, reprinted 1923.)

EXPLANATION.

The time of sunrise and sunset at a given place expressed in mean solar time varies from day to day throughout the year, depending principally upon the declination of the sun, that is, its angular distance north or south of a position directly over the Equator. Variations in the equation of time, the apparent diameter of the sun and the atmospheric refraction at the points of sunrise and sunset also affect the final result.

Furthermore, these quantities as well as the solar declination do not have the same values on corresponding days from year to year. It therefore follows that it is impossible to give in any general table the exact times of sunrise and sunset day by day.

The tables which follow have been computed from Table 61, Smithsonian Meteorological Tables, 1897, which gives the duration of sunshine for each 20 minutes of solar declination. To determine the time of sunrise and sunset for each day we have used the values of the solar declination and the equations of time given in the Nautical Almanac for the year 1899, since it is found that these are very close average values and the tables may, therefore, be accepted as approximately correct for all years. In extreme cases the error for one or more months consecutively may amount to between two or three minutes per day, or about one hour per month. This inexactness, however, is of slight consequence compared with errors due to other causes. For example, the table is computed for an ideal sea horizon, a condition only approximately realized on land surfaces, generally and widely departed from in hilly and mountainous localities. The greater or less elevation of the point of view above the ground must also be considered if the most exact results are necessary.

The times of sunrise and sunset are given in hours and minutes. To facilitate computation, the total possible sunshine is given in hours and tenths. In leap years, February 29 is given the same amount of sunshine as March 1.

LATITUDE 40° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

JANUARY.				FEBRUARY.				MARCH.				APRIL.				MAY.				JUNE.			
Date.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.		
1	7 22	4 46	9.4	7 09	5 19	10.2	6 33	5 52	11.3	5 44	6 24	12.7	5 00	6 54	13.9	4 33	7 23	14.8	4 33	7 23	14.8		
2	22	46	.4	08	20	.2	32	53	.4	42	25	.7	4 59	55	.9	32	23	.8	32	23	.8		
3	22	47	.4	06	22	.2	30	54	.4	40	26	.8	57	56	14.0	32	24	.9	32	24	.9		
4	22	48	.4	06	23	.3	29	55	.4	39	27	.8	56	57	.0	32	24	.9	32	24	.9		
5	22	49	.4	05	24	.3	27	56	.5	37	28	.8	55	58	.0	32	25	.9	32	25	.9		
6	22	50	.5	04	25	.4	26	57	.5	36	29	.9	54	59	.1	31	26	.9	31	26	.9		
7	22	51	.5	03	26	.4	24	58	.6	34	30	.9	53	7 00	.1	31	26	.9	31	26	.9		
8	22	52	.5	01	27	.4	22	59	.6	33	31	13.0	52	01	.2	31	27	.9	31	27	.9		
9	22	53	.5	00	29	.5	21	6 00	.7	31	32	.0	50	02	.2	31	27	.9	31	27	.9		
10	22	54	.5	6 59	30	.5	19	01	.7	30	33	.1	49	03	.2	30	28	15.0	30	28	15.0		
11	22	55	.6	58	31	.6	18	02	.7	28	34	.1	48	04	.3	30	28	.0	30	28	.0		
12	21	56	.6	57	32	.6	16	04	.8	26	35	.1	47	05	.3	30	29	.0	30	29	.0		
13	21	57	.6	56	33	.6	14	05	.8	25	36	.2	46	06	.3	30	29	.0	30	29	.0		
14	20	58	.6	54	34	.7	13	06	.9	23	37	.2	45	07	.4	30	30	.0	30	30	.0		
15	20	59	.7	53	36	.7	12	06	.9	22	38	.3	44	08	.4	30	30	.0	30	30	.0		
16	20	5 00	.7	52	37	.8	10	08	12.0	20	39	.3	44	09	.4	30	31	.0	30	31	.0		
17	19	01	.7	50	38	.8	08	09	.0	19	40	.4	43	10	.4	30	31	.0	30	31	.0		
18	19	03	.7	49	39	.8	06	10	.1	18	41	.4	42	11	.5	31	31	.0	31	31	.0		
19	18	04	.8	48	40	.9	05	11	.1	16	42	.4	41	12	.5	31	32	.0	31	32	.0		
20	18	05	.8	46	42	.9	03	12	.1	15	43	.5	40	13	.5	31	32	.0	31	32	.0		
21	17	06	.8	45	43	11.0	02	13	.2	13	44	.5	39	14	.6	31	32	.0	31	32	.0		
22	17	07	.8	43	44	.0	00	14	.2	12	45	.6	39	14	.6	31	32	.0	31	32	.0		
23	16	08	.9	42	45	.0	5 59	14	.3	10	46	.6	38	15	.6	32	32	.0	32	32	.0		
24	15	10	.9	40	46	.1	57	16	.3	09	47	.6	37	16	.6	32	33	.0	32	33	.0		
25	15	11	.9	39	47	.1	55	17	.4	08	48	.7	37	17	.7	32	33	.0	32	33	.0		
26	14	12	10.0	38	48	.2	54	18	.4	06	49	.7	36	18	.7	32	33	.0	32	33	.0		
27	13	13	.0	37	49	.2	52	19	.5	05	50	.8	35	18	.7	33	33	.0	33	33	.0		
28	12	14	.0	35	50	.3	50	20	.5	04	51	.8	35	19	.7	33	33	.0	33	33	.0		
29	11	15	.1	33	52	.3	49	21	.5	02	52	.8	34	20	.8	34	33	.0	34	33	.0		
30	10	17	.1	.....	.....	.....	47	22	.6	01	53	.9	34	21	.8	34	34	.0	34	34	.0
31	10	18	.1	.....	.....	.....	46	23	.6	.....	.....	.....	33	22	.8	.....	.....	.....	.....	.....	.....
Total.....	300.9			{ 28 d 299.7 29 d 311.0 }					371.0			448.9

LATITUDE 40° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

5

JULY.				AUGUST.				SEPTEMBER.				OCTOBER.				NOVEMBER.				DECEMBER.			
Date.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.		
	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.		
1	4 35	7 33	15.0	4 58	7 14	14.3	5 28	6 32	13.1	5 56	5 43	11.8	6 29	4 58	10.5	7 03	4 35	9.5	7 03	4 35	9.5		
2	35	32	.0	59	13	.2	29	30	.0	57	41	.7	30	57	.4	04	35	.5	04	35	.5		
3	36	32	14.9	00	12	.2	30	29	.0	58	40	.7	32	56	.4	05	35	.5	05	35	.5		
4	36	32	.9	01	11	.2	30	27	.0	59	38	.6	33	54	.4	06	35	.5	06	35	.5		
5	37	32	.9	02	10	.1	31	26	12.9	00	36	.6	34	53	.3	07	35	.5	07	35	.5		
6	37	32	.9	03	08	.1	32	24	.9	01	35	.6	35	52	.3	08	35	.5	08	35	.5		
7	38	31	.9	04	07	.1	34	22	.8	02	34	.5	36	52	.3	09	35	.4	09	35	.4		
8	38	31	.9	05	06	.0	34	21	.8	03	32	.5	37	50	.2	10	35	.4	10	35	.4		
9	39	31	.9	06	05	.0	35	19	.7	04	30	.4	39	49	.2	10	35	.4	10	35	.4		
10	40	30	.8	07	04	.0	36	17	.7	05	29	.4	40	48	.1	11	35	.4	11	35	.4		
11	40	30	.8	08	02	13.9	37	16	.6	06	27	.4	41	47	.1	12	35	.4	12	35	.4		
12	41	30	.8	09	01	.9	38	14	.6	08	25	.3	42	47	.1	13	35	.4	13	35	.4		
13	42	29	.8	10	00	.8	39	12	.6	09	24	.2	43	46	.0	14	35	.4	14	35	.4		
14	43	28	.8	10	59	.8	40	11	.5	10	22	.2	44	45	.0	14	35	.4	14	35	.4		
15	44	28	.7	11	57	.8	41	10	.5	11	21	.2	45	44	.0	15	36	.3	15	36	.3		
16	44	27	.7	12	56	.7	42	08	.4	12	19	.1	47	43	9.9	16	36	.3	16	36	.3		
17	45	27	.7	13	54	.7	43	06	.4	13	18	.1	48	42	.9	17	36	.3	17	36	.3		
18	46	26	.7	14	53	.6	44	04	.3	14	16	.0	49	42	.9	17	37	.3	17	37	.3		
19	47	25	.6	15	52	.6	45	02	.3	15	15	.0	50	41	.8	18	37	.3	18	37	.3		
20	48	25	.6	16	50	.6	46	01	.2	16	14	.0	51	40	.8	18	37	.3	18	37	.3		
21	48	24	.6	17	49	.5	47	59	.2	17	12	10.9	52	40	.8	19	38	.3	19	38	.3		
22	49	23	.6	18	47	.5	48	58	.2	18	11	.9	53	39	.8	19	38	.3	19	38	.3		
23	50	22	.5	19	46	.4	48	56	.1	19	10	.8	54	39	.7	20	39	.3	20	39	.3		
24	51	22	.5	20	44	.4	49	55	.1	20	08	.8	56	38	.7	20	40	.3	20	40	.3		
25	52	21	.5	21	43	.4	50	53	.0	22	07	.8	57	38	.7	21	40	.3	21	40	.3		
26	53	20	.4	22	41	.3	51	51	.0	23	06	.7	58	37	.7	21	41	.3	21	41	.3		
27	54	19	.4	23	40	.3	52	50	.0	24	04	.7	59	37	.6	21	41	.3	21	41	.3		
28	54	18	.4	24	38	.2	53	48	11.9	25	03	.6	7 00	36	.6	22	42	.4	22	42	.4		
29	55	17	.4	24	37	.2	54	46	.9	26	02	.6	01	36	.6	22	43	.4	22	43	.4		
30	56	16	.3	26	35	.2	55	45	.8	27	00	.6	02	36	.6	22	44	.4	22	44	.4		
31	57	15	.3	27	34	.1	.....	.....	.....	28	59	.5	.....	.....	.....	22	44	.4	22	44	.4
Total.....	.....	.....	455.2	.....	.....	425.1	.....	.....	373.5	.....	.....	345.2	.....	.....	299.4	.....	.....	290.6	.....	.....	.....

Total for the year, 4454.3.

Total for leap year, 4465.6

Total for the year, 4454.3. Total for leap year, 4465.6

LATITUDE 41° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

Date	JANUARY.			FEBRUARY.			MARCH.			Date.	APRIL.			MAY.			JUNE.		
	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.		Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.
	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.		Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.
1	7 25	4 42	9.3	7 11	5 17	10.1	6 34	5 51	11.3	1	5 43	6 25	12.7	4 58	6 56	14.0	4 30	7 26	14.9
2	25 43	43 3	.3	10 10	18 3	.1	33 33	52 5	.3	2	42 42	26 26	.7	56 56	57 57	.0	29 29	26 26	15.0
3	25 44	44 3	.3	9 09	20 2	.2	31 31	53 5	.4	3	40 40	27 27	.8	55 55	58 58	.1	29 29	27 27	.0
4	25 45	45 3	.3	8 08	21 2	.2	29 29	54 5	.4	4	38 38	28 28	.8	54 54	59 59	.1	29 29	28 28	.0
5	25 46	46 3	.3	7 07	22 2	.2	28 28	55 5	.5	5	36 36	29 29	.9	52 52	7 00	.1	28 28	28 28	.0
6	25 47	47 4	.4	6 06	23 3	.3	26 26	56 5	.5	6	35 35	30 30	.9	51 51	01 01	.2	28 28	29 29	.0
7	25 48	48 4	.4	5 04	24 3	.3	25 25	58 5	.6	7	33 33	31 31	13.0	50 50	02 02	.2	28 28	29 29	.0
8	25 49	49 4	.4	4 03	26 4	.4	23 23	59 5	.6	8	32 32	32 32	.0	49 49	03 03	.2	28 28	30 30	.0
9	25 50	50 4	.4	3 02	27 4	.4	21 21	6 00	.6	9	30 30	33 33	.1	48 48	04 04	.3	27 27	31 31	.0
10	25 51	51 4	.4	2 01	28 5	.5	20 20	01 01	.7	10	28 28	34 34	.1	47 47	05 05	.3	27 27	31 31	.1
11	24 52	52 5	.5	1 00	29 5	.5	18 18	02 02	.7	11	27 27	35 35	.1	46 46	06 06	.3	27 27	32 32	.1
12	24 53	53 5	.5	6 58	31 5	.5	16 16	03 03	.8	12	25 25	36 36	.2	45 45	08 08	.4	27 27	32 32	.1
13	24 54	54 5	.5	5 57	32 6	.6	15 15	04 04	.8	13	24 24	37 37	.2	44 44	09 09	.4	27 27	33 33	.1
14	23 55	55 5	.5	5 56	33 6	.6	13 13	05 05	.9	14	22 22	38 38	.3	43 43	10 10	.4	27 27	33 33	.1
15	23 56	56 6	.6	5 54	34 7	.7	12 12	06 06	.9	15	21 21	39 39	.3	42 42	11 11	.5	27 27	33 33	.1
16	23 58	58 6	.6	5 53	35 7	.7	10 10	07 07	12.0	16	19 19	40 40	.4	41 41	11 11	.5	27 27	34 34	.1
17	22 59	59 6	.6	5 52	37 8	.8	8 08	09 09	.0	17	17 17	42 42	.4	40 40	12 12	.5	27 27	34 34	.1
18	22 00	00 5	.6	5 50	38 8	.8	7 07	10 10	.1	18	16 16	42 42	.4	39 39	13 13	.6	27 27	34 34	.1
19	21 01	01 7	.7	4 49	39 8	.8	5 05	11 11	.1	19	15 15	43 43	.5	38 38	14 14	.6	27 27	35 35	.1
20	20 02	02 7	.7	4 48	40 9	.9	3 03	12 12	.1	20	13 13	45 45	.5	37 37	15 15	.6	28 28	35 35	.1
21	20 03	03 7	.7	4 46	41 9	.9	2 02	13 13	.2	21	12 12	46 46	.6	37 37	16 16	.7	28 28	35 35	.1
22	19 05	05 8	.8	4 45	43 11.0	.0	00 00	14 14	.2	22	10 10	47 47	.6	36 36	17 17	.7	28 28	35 35	.1
23	18 06	06 8	.8	4 43	44 0	.0	5 58	15 15	.3	23	9 09	48 48	.7	35 35	18 18	.7	28 28	36 36	.1
24	18 07	07 8	.8	4 42	45 1	.1	5 57	16 16	.3	24	7 07	49 49	.7	34 34	19 19	.7	29 29	36 36	.1
25	17 08	08 9	.9	4 40	46 1	.1	5 55	17 17	.4	25	6 06	50 50	.7	34 34	20 20	.8	29 29	36 36	.1
26	16 10	10 9	.9	3 39	47 1	.1	5 53	18 18	.4	26	4 04	51 51	.8	33 33	21 21	.8	29 29	36 36	.1
27	15 11	11 9	.9	3 38	48 2	.2	5 52	19 19	.5	27	3 03	52 52	.8	32 32	22 22	.8	30 30	36 36	.1
28	14 12	12 10.0	.0	3 36	50 2	.2	5 50	20 20	.5	28	2 02	53 53	.9	32 32	22 22	.8	30 30	36 36	.1
29	14 13	13 0	.0	3 34	51 3	.3	4 48	21 21	.5	29	00 00	54 54	.9	31 31	23 23	.9	30 30	36 36	.1
30	13 14	14 0	.0	3 34	51 3	.3	4 47	22 22	.6	30	4 59	55 55	.9	31 31	24 24	.9	31 31	36 36	.1
31	12 16	16 1	.1	3 34	51 3	.3	4 45	23 23	.6	31	.....	.....	.....	30 30	25 25	.9	.....	.....	.....
Total.....	.....	.....	298.2	.....	{ 28 d 29 d	298.2 309.5	.....	.....	370.8	.....	.....	.....	399.9	.....	.....	449.0	.....	.....	452.0

LATITUDE 41° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

Date.	JULY.			AUGUST.			Date.	SEPTEMBER.			OCTOBER.			NOVEMBER.			DECEMBER.		
	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.		Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.
	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.		Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.
1	4 31	7 36	15.1	4 56	7 16	14.3	1	5 27	6 33	13.1	5 57	5 42	11.8	6 31	4 56	10.4	7 06	4 33	9.4
2	32	36	.1	57	15	.3	2	28	31	.1	58	41	.7	32	55	.4	07	32	.4
3	32	36	.0	58	14	.3	3	29	30	.0	59	39	.7	34	54	.3	08	32	.4
4	33	35	.0	59	13	.2	4	30	28	.0	6 00	38	.6	35	53	.3	09	32	.4
5	34	35	.0	5 00	12	.2	5	30	27	12.9	01	36	.6	36	51	.3	10	32	.4
6	34	35	.0	01	11	.2	6	31	25	.9	02	34	.5	37	50	.2	11	32	.4
7	35	35	.0	02	10	.1	7	32	23	.8	03	33	.5	38	49	.2	12	32	.3
8	35	34	.0	03	08	.1	8	33	22	.8	04	31	.5	40	48	.1	13	32	.3
9	36	34	.0	03	07	.1	9	34	20	.8	05	29	.4	41	47	.1	14	32	.3
10	37	34	14.9	04	06	.0	10	35	18	.7	06	28	.4	42	46	.1	14	32	.3
11	37	33	.9	06	04	.0	11	36	16	.7	07	26	.3	43	45	.0	15	32	.3
12	38	33	.9	07	03	13.9	12	38	15	.6	08	25	.3	44	44	.0	16	32	.3
13	39	32	.9	08	02	.9	13	39	13	.6	10	23	.2	45	44	.0	17	32	.3
14	40	32	.9	09	00	.9	14	40	11	.5	11	21	.2	47	43	.9	17	32	.2
15	40	31	.8	10	59	.8	15	40	10	.5	12	20	.1	48	42	.9	18	33	.2
16	41	30	.8	11	58	.8	16	41	08	.4	13	18	.1	49	41	.9	19	33	.2
17	42	30	.8	12	56	.7	17	42	06	.4	14	17	.0	50	40	.8	20	33	.2
18	43	29	.8	13	55	.7	18	43	05	.4	15	15	.0	51	39	.8	20	34	.2
19	44	28	.7	14	53	.7	19	45	03	.3	16	14	.0	52	39	.8	21	34	.2
20	45	28	.7	15	52	.6	20	46	01	.3	17	12	10.9	54	38	.7	21	34	.2
21	46	27	.7	16	50	.6	21	46	00	.2	18	11	.9	55	37	.7	22	35	.2
22	46	26	.7	17	49	.5	22	47	58	.2	19	10	.8	56	37	.7	22	35	.2
23	47	25	.6	18	47	.5	23	48	56	.1	21	08	.8	57	36	.6	23	36	.2
24	48	24	.6	19	46	.5	24	49	55	.1	22	07	.7	58	35	.6	23	37	.2
25	49	23	.6	19	44	.4	25	50	53	.0	23	05	.7	7 00	35	.6	24	37	.2
26	50	22	.5	21	43	.4	26	51	51	.0	24	04	.7	01	34	.6	24	38	.2
27	51	22	.5	22	41	.3	27	52	49	.0	25	03	.6	02	34	.5	24	38	.2
28	52	21	.5	23	40	.3	28	54	48	11.9	26	01	.6	03	34	.5	25	39	.2
29	53	20	.5	23	38	.2	29	55	46	.9	28	00	.5	04	33	.5	25	40	.2
30	54	19	.4	24	36	.2	30	56	44	.8	29	4 59	.5	05	33	.5	25	41	.3
31	55	18	.4	26	35	.2	31	.....	.....	.....	30	57	.5	.....	41	.....	25	41	.3
Total.....	458.3			426.9			.....	374.0			344.1			297.0			287.3		

Total for the year, 4455.7. Total for leap year, 4467.0

LATITUDE 42° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time.)

JANUARY.				FEBRUARY.				MARCH.				APRIL.				MAY.				JUNE.							
Date.		Sunrise.	Sunset.	Total possi-ble.	Sunrise.		Sunset.	Total possi-ble.	Sunrise.		Sunset.	Total possi-ble.	Sunrise.		Sunset.	Total possi-ble.	Sunrise.		Sunset.	Total possi-ble.	Sunrise.		Sunset.	Total possi-ble.			
Hrs. min.		Hrs. min.	Hrs. min.	Hrs.	Hrs. min.		Hrs. min.	Hrs.	Hrs. min.		Hrs. min.	Hrs.	Hrs. min.		Hrs. min.	Hrs.	Hrs. min.		Hrs. min.	Hrs.	Hrs. min.		Hrs. min.	Hrs.			
1	7 28	4 40	9.2	10.0	7 13	5 15	11.2	11.2	6 35	5 50	11.2	12.7	5 42	6 25	6 58	14.0	4 27	7 29	15.0								
2	28	40	.2	.1	12	16	.3	.3	33	51	.3	.8	41	26	59	.1	26	29	.0								
3	28	41	.2	.1	11	17	.4	.4	32	52	.4	.8	39	27	7	.1	26	30	.1								
4	28	42	.2	.1	10	18	.4	.4	30	54	.4	.8	38	28	02	.2	26	31	.1								
5	28	43	.2	.2	09	20	.4	.4	28	55	.4	.9	36	30	03	.2	25	31	.1								
6	28	44	.3	.2	08	21	.5	.5	27	56	.5	.9	34	31	04	.2	25	32	.1								
7	28	45	.3	.3	06	22	.5	.5	25	57	.5	13.0	32	32	05	.3	25	33	.1								
8	28	46	.3	.3	05	24	.6	.6	23	58	.6	.0	31	33	06	.3	24	33	.2								
9	28	47	.3	.4	04	25	.6	.6	22	59	.6	.1	29	34	07	.4	24	34	.2								
10	27	48	.3	.4	03	26	.7	.7	20	01	.7	.1	27	35	08	.4	24	34	.2								
11	27	49	.4	.4	02	28	.7	.7	18	02	.7	.2	26	36	09	.4	24	35	.2								
12	27	50	.4	.5	00	29	.8	.8	17	03	.8	.2	24	37	10	.5	24	35	.2								
13	26	52	.4	.5	6 58	30	.8	.8	15	04	.8	.3	22	38	11	.5	24	36	.2								
14	26	53	.4	.6	57	32	.9	.9	13	05	.9	.3	21	40	12	.5	24	36	.2								
15	26	54	.5	.6	56	33	.9	.9	12	06	.9	.4	19	41	13	.6	24	37	.2								
16	25	55	.5	.7	55	34	12.0	12.0	10	07	.7	.6	18	42	14	.6	24	37	.2								
17	25	56	.5	.7	53	35	.0	.0	08	08	.0	.6	16	43	15	.6	24	38	.2								
18	24	57	.6	.7	52	37	.0	.0	07	10	.0	.7	15	44	16	.7	24	38	.2								
19	24	58	.6	.8	50	38	.1	.1	05	11	.1	.5	13	45	17	.7	24	38	.2								
20	23	00	.6	.8	49	39	.1	.1	03	12	.1	.6	12	46	18	.7	24	38	.2								
21	22	01	.6	.9	48	40	.2	.2	02	13	.2	.8	10	47	19	.8	24	38	.2								
22	22	02	.7	.9	46	41	.2	.2	00	14	.2	.8	08	48	20	.8	25	39	.2								
23	21	04	.7	11.0	44	43	.3	.3	5 58	15	.3	.7	07	50	21	.8	25	39	.2								
24	20	05	.7	.0	43	44	.3	.3	56	16	.3	.8	05	51	22	.8	25	39	.2								
25	19	06	.8	.0	42	45	.4	.4	55	17	.4	.8	04	52	23	.9	26	39	.2								
26	18	07	.8	.1	40	46	.4	.4	53	18	.4	.8	03	53	24	.9	26	39	.2								
27	18	08	.8	.1	39	47	.5	.5	51	20	.5	.9	01	54	24	.9	26	39	.2								
28	17	10	.9	.2	37	49	.5	.5	50	21	.5	.9	00	55	25	.9	27	39	.2								
29	16	11	.9	.2	35	50	.6	.6	48	22	.6	14.0	4 58	56	26	15.0	27	39	.2								
30	15	12	10.0	-----	-----	-----	.6	.6	46	23	.6	.0	57	57	27	.0	28	39	.2								
31	14	13	.0	-----	-----	-----	.7	.7	44	24	.7	-----	-----	-----	28	.0	28	39	.2								
Total.....				295.3	{ 28 d 29 d				370.6	-----				-----				-----				-----				451.8	455.1

LATITUDE 42° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

Date.	JULY.			AUGUST.			SEPTEMBER.			OCTOBER.			NOVEMBER.			DECEMBER.		
	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.
	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.
1	4 28	7 39	15.2	4 53	7 19	14.4	5 25	6 34	13.2	5 57	5 42	11.8	6 33	4 54	10.4	7 09	4 30	9.4
2	4 29	7 39	.2	5 54	18	.4	26	32	.1	58	40	.7	34	53	.3	10	30	.3
3	4 29	7 39	.2	5 56	16	.4	28	31	.0	59	39	.7	36	52	.3	11	29	.3
4	4 30	7 39	.1	5 57	15	.3	28	29	.0	00	37	.6	37	51	.2	12	29	.3
5	4 30	7 38	.1	5 58	14	.3	29	28	.0	01	35	.6	38	49	.2	13	29	.3
6	5 31	7 38	.1	5 58	13	.2	30	26	12.9	02	34	.5	39	48	.2	14	29	.3
7	5 32	7 38	.1	5 59	12	.2	32	24	.9	04	32	.5	40	47	.1	15	29	.2
8	5 32	7 37	.1	5 00	11	.2	33	22	.8	05	30	.4	42	46	.1	16	29	.2
9	5 33	7 37	.1	5 01	09	.1	34	20	.8	06	29	.4	43	45	.0	16	29	.2
10	5 34	7 37	.0	5 02	08	.1	35	19	.7	07	27	.3	44	44	.0	17	29	.2
11	5 34	7 36	.0	5 04	06	.0	36	17	.7	08	26	.3	46	43	.0	18	29	.2
12	5 35	7 36	.0	5 05	05	.0	37	15	.6	09	24	.2	47	42	.9	19	29	.2
13	5 36	7 35	.0	5 06	04	.0	38	13	.6	10	22	.2	48	41	.9	20	29	.2
14	5 37	7 34	.0	5 07	02	13.9	39	12	.6	12	21	.2	49	40	.9	20	29	.2
15	5 38	7 34	14.9	5 08	01	.9	40	10	.5	13	19	.1	50	39	.8	21	30	.1
16	5 38	7 33	.9	5 09	6	.8	41	08	.5	14	17	.1	51	38	.8	22	30	.1
17	5 39	7 33	.9	5 10	58	.8	42	07	.4	15	16	.0	52	38	.8	23	30	.1
18	5 40	7 32	.9	5 11	56	.8	43	05	.4	16	14	.0	54	37	.7	23	31	.1
19	5 41	7 31	.8	5 12	55	.7	44	03	.3	17	13	10.9	55	36	.7	24	31	.1
20	5 42	7 30	.8	5 13	54	.7	45	02	.3	18	11	.9	56	35	.7	24	31	.1
21	5 43	7 30	.8	5 14	52	.6	46	00	.2	20	10	.8	57	35	.6	25	32	.1
22	5 44	7 29	.8	5 15	50	.6	47	58	.2	21	08	.8	59	34	.6	25	32	.1
23	5 45	7 28	.7	5 16	49	.5	48	56	.1	22	07	.8	7	33	.6	26	33	.1
24	5 46	7 27	.7	5 17	47	.5	49	55	.1	23	05	.7	01	33	.5	26	34	.1
25	5 46	7 26	.7	5 18	46	.5	50	53	.0	24	04	.6	02	32	.5	27	34	.1
26	5 47	7 25	.6	5 19	44	.4	52	51	.0	26	02	.6	03	32	.5	27	35	.1
27	5 48	7 24	.6	5 20	42	.4	53	49	11.9	27	01	.6	04	31	.4	27	35	.1
28	5 49	7 23	.6	5 21	41	.3	54	47	.9	28	00	.5	05	31	.4	28	36	.1
29	5 50	7 22	.5	5 22	39	.3	55	46	.8	29	4	.5	06	31	.4	28	37	.2
30	5 51	7 21	.5	5 23	38	.2	56	44	.8	30	53	.4	08	30	.4	28	38	.2
31	5 52	7 20	.5	5 24	36	.2	.....	.....	.....	32	56	.4	.....	.....	.....	28	38	.2
Total.....	.....	.....	461.4	.....	.....	428.7	.....	.....	374.3	.....	.....	343.1	.....	.....	294.9	.....	.....	284.5

Total for the year, 4457.4, Total for leap year, 4468.6

LATITUDE 43° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

Date.	JANUARY.			FEBRUARY.			MARCH.			Date.	APRIL.			MAY.			JUNE.		
	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.		Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.
	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.		Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.
1	7 32	4 36	9.1	7 15	5 12	10.0	6 36	5 49	11.2	1	5 42	6 26	12.7	4 54	7 00	14.1	4 23	7 32	15.1
2	32	37	.1	14	14	.0	34	50	.3	2	40	27	.8	52	02	.2	23	33	.2
3	32	38	.1	13	15	.0	33	52	.3	3	38	28	.8	51	03	.2	22	34	.2
4	32	39	.1	12	16	.1	31	53	.4	4	37	29	.9	49	04	.2	22	34	.2
5	32	40	.1	11	18	.1	29	54	.4	5	35	31	.9	48	05	.3	22	35	.2
6	31	41	.2	10	19	.2	27	55	.5	6	33	32	13.0	47	06	.3	21	36	.2
7	31	42	.2	08	20	.2	26	56	.5	7	31	33	.0	46	07	.4	21	36	.3
8	31	43	.2	07	22	.2	24	58	.6	8	30	34	.1	44	08	.4	21	37	.3
9	31	44	.2	06	23	.3	22	59	.6	9	28	35	.1	43	10	.4	20	38	.3
10	31	45	.2	04	24	.3	21	60	.7	10	26	36	.2	42	11	.5	20	38	.3
11	30	46	.3	03	26	.4	19	01	.7	11	25	37	.2	41	12	.5	20	39	.3
12	30	47	.3	02	27	.4	17	03	.8	12	23	39	.3	40	13	.6	20	39	.3
13	30	48	.3	00	28	.5	15	04	.8	13	21	40	.3	38	14	.6	20	40	.3
14	29	49	.3	59	30	.5	14	05	.9	14	20	41	.4	37	15	.6	20	40	.3
15	29	51	.4	58	31	.6	12	06	.9	15	18	42	.4	36	16	.7	20	40	.3
16	28	52	.4	56	32	.6	10	07	12.0	16	16	43	.4	35	17	.7	20	41	.4
17	28	53	.4	55	34	.6	08	08	.0	17	14	45	.5	34	18	.7	20	41	.4
18	27	54	.5	53	35	.7	07	10	.0	18	13	46	.5	33	19	.8	20	42	.4
19	26	56	.5	52	36	.7	05	11	.1	19	12	47	.6	32	20	.8	20	42	.4
20	26	57	.5	50	38	.8	03	12	.1	20	10	48	.6	32	21	.8	21	42	.4
21	25	58	.6	49	39	.8	02	13	.2	21	08	49	.7	31	22	.8	21	42	.4
22	24	59	.6	47	40	.9	00	14	.2	22	07	50	.7	30	23	.9	21	42	.4
23	24	01	.6	45	42	.9	58	15	.3	23	05	51	.8	29	24	.9	21	43	.4
24	23	02	.7	44	43	11.0	56	17	.3	24	04	52	.8	28	25	.9	22	43	.4
25	22	03	.7	43	44	.0	54	18	.4	25	02	54	.9	27	26	15.0	22	43	.4
26	21	05	.7	41	45	.1	52	19	.4	26	01	55	.9	27	27	.0	22	43	.4
27	20	06	.8	40	46	.1	51	20	.5	27	4 59	56	.9	26	28	.0	23	43	.3
28	19	07	.8	38	48	.2	49	21	.5	28	58	57	14.0	26	29	.1	23	43	.3
29	18	08	.8	36	49	.2	47	22	.6	29	56	58	.0	25	29	.1	23	43	.3
30	17	10	.9	36	49	.....	45	24	.6	30	55	59	.1	24	30	.1	24	43	.3
31	16	11	.9	.....	.....	.....	44	25	.7	31	.....	.....	.....	24	31	.1	.....	.....	.....
Total.....	.....	.....	292.5	.....	{ 28 d 29 d	295.2 306.4	.....	.....	370.5	.....	.....	.....	402.5	.....	.....	454.7	.....	.....	459.4

LATITUDE 43° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

Date.	JULY.			AUGUST.			Date.	SEPTEMBER.			OCTOBER.			NOVEMBER.			DECEMBER.		
	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.		Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.
	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.		Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.
1	4 24	7 43	15.3	4 50	7 22	14.5	1	5 24	6 35	13.2	5 57	42 5	11.7	6 35	4 53	10.3	7 12	4 27	9.2
2	25 43	43 3	.3	52 52	20 20	.5	2	25 25	34 34	.1	59 59	40 40	.7	36 36	51 51	.3	13 13	26 26	.2
3	25 43	43 3	.3	53 53	19 19	.4	3	26 26	32 32	.1	00 00	38 38	.6	38 38	50 50	.2	14 14	26 26	.2
4	26 42	42 3	.3	54 54	18 18	.4	4	28 28	30 30	.0	01 01	37 37	.6	39 39	49 49	.2	15 15	26 26	.2
5	27 42	42 3	.3	55 55	17 17	.4	5	29 29	29 29	.0	02 02	35 35	.6	40 40	47 47	.1	16 16	26 26	.2
6	27 42	42 3	.3	56 56	16 16	.3	6	30 30	27 27	.0	03 03	33 33	.5	41 41	46 46	.1	17 17	26 26	.1
7	28 41	41 3	.3	57 57	14 14	.3	7	31 31	25 25	12.9	04 04	31 31	.5	42 42	45 45	.0	18 18	26 26	.1
8	29 41	41 3	.2	58 58	13 13	.2	8	32 32	23 23	.9	05 05	30 30	.4	44 44	44 44	.0	19 19	26 26	.1
9	29 41	41 3	.2	59 59	12 12	.2	9	33 33	21 21	.8	07 07	28 28	.4	45 45	43 43	.0	20 20	25 25	.1
10	30 40	40 3	.2	5 00	10 10	.2	10	34 34	20 20	.8	08 08	26 26	.3	46 46	42 42	9.9	21 21	26 26	.1
11	31 40	40 3	.1	01 01	09 09	.1	11	35 35	18 18	.7	09 09	25 25	.3	48 48	41 41	.9	21 21	26 26	.1
12	32 39	39 3	.1	02 02	07 07	.1	12	36 36	16 16	.7	10 10	23 23	.2	49 49	40 40	.8	22 22	26 26	.1
13	33 38	38 3	.1	04 04	06 06	.0	13	37 37	14 14	.6	11 11	21 21	.2	50 50	39 39	.8	23 23	26 26	.0
14	33 38	38 3	.1	05 05	04 04	.0	14	39 39	12 12	.6	12 12	20 20	.1	51 51	38 38	.8	24 24	26 26	.0
15	34 37	37 3	.0	06 06	03 03	13.9	15	40 40	11 11	.5	14 14	18 18	.1	53 53	37 37	.7	25 25	26 26	.0
16	35 37	37 3	.0	07 07	01 01	.9	16	41 41	09 09	.5	15 15	16 16	.0	54 54	36 36	.7	25 25	26 26	.0
17	36 36	36 3	.0	08 08	00 00	.9	17	42 42	07 07	.4	16 16	15 15	.0	55 55	35 35	.7	26 26	27 27	.0
18	37 35	35 3	.0	09 09	58 6	.8	18	43 43	05 05	.4	17 17	13 13	10.9	56 56	34 34	.6	27 27	27 27	.0
19	38 35	35 3	.0	10 10	57 57	.8	19	44 44	04 04	.3	19 19	11 11	.9	58 58	33 33	.6	27 27	28 28	.0
20	39 34	34 3	14.9	11 11	55 55	.7	20	45 45	02 02	.3	20 20	10 10	.8	59 59	33 33	.5	28 28	28 28	.0
21	40 33	33 3	.9	12 12	54 54	.7	21	46 46	00 00	.2	21 21	08 08	.8	7 00	32 32	.5	28 28	28 28	.0
22	41 32	32 3	.9	13 13	52 52	.6	22	47 47	58 5	.2	22 22	07 07	.7	01 01	31 31	.5	29 29	29 29	.0
23	42 31	31 3	.8	15 15	50 50	.6	23	48 48	56 56	.1	23 23	05 05	.7	03 03	30 30	.5	29 29	30 30	.0
24	43 30	30 3	.8	16 16	49 49	.6	24	49 49	55 55	.1	24 24	04 04	.6	04 04	30 30	.4	30 30	30 30	.0
25	44 29	29 3	.8	16 16	47 47	.5	25	50 50	53 53	.0	25 25	02 02	.6	05 05	29 29	.4	30 30	31 31	.0
26	44 28	28 3	.7	18 18	46 46	.5	26	52 52	51 51	.0	27 27	01 01	.6	06 06	29 29	.4	30 30	31 31	.0
27	45 27	27 3	.7	19 19	44 44	.4	27	53 53	49 49	11.9	29 29	4 59	.5	07 07	28 28	.3	31 31	32 32	.0
28	46 26	26 3	.7	20 20	42 42	.4	28	54 54	47 47	.9	30 30	58 58	.5	09 09	28 28	.3	31 31	33 33	.0
29	47 25	25 3	.6	21 21	41 41	.3	29	55 55	46 46	.8	31 31	57 57	.4	10 10	27 27	.3	31 31	33 33	.0
30	48 24	24 3	.6	22 22	39 39	.3	30	56 56	44 44	.8	32 32	55 55	.4	11 11	27 27	.3	31 31	34 34	.0
31	49 23	23 3	.6	23 23	37 37	.2	31	.....	.....	.....	33 33	54 54	.3	.....	.....	.....	32 32	35 35	.1
Total.....			464.9			430.7				374.8			341.9			292.1			280.8

Total for the year, 4460.0. Total for leap year, 4471.2

LATITUDE 44° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

JANUARY.				FEBRUARY.				MARCH.				Date.	APRIL.				MAY.				JUNE.			
Date.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.
1	Hrs. min. 7 35	Hrs. min. 4 33	Hrs. 9.0	Hrs. min. 7 17	Hrs. min. 5 10	Hrs. 9.9	Hrs. min. 6 37	Hrs. min. 5 48	Hrs. 11.2	Hrs. min. 5 41	Hrs. min. 6 27	Hrs. 12.8	Hrs. min. 4 51	Hrs. min. 7 03	Hrs. 14.2	Hrs. min. 4 20	Hrs. min. 7 35	Hrs. 15.2	Hrs. min. 4 19	Hrs. min. 7 36	Hrs. 15.3	Hrs. min. 4 18	Hrs. min. 7 37	Hrs. 15.3
2	35	34	.0	16	12	.9	35	49	.2	39	28	.8	38	50	.2	39	36	.3	37	37	.3	38	38	.3
3	35	35	.0	15	13	10.0	34	50	.3	38	29	.9	36	48	.3	47	38	.3	38	38	.3	39	39	.4
4	35	36	.0	14	14	.0	32	52	.3	36	30	.9	34	46	.4	46	39	.4	38	39	.4	40	40	.4
5	35	37	.0	13	15	.0	30	53	.4	34	32	13.0	32	44	.4	44	41	.4	37	42	.4	42	42	.4
6	35	38	.0	12	17	.1	28	55	.4	32	33	.0	32	44	.4	44	41	.4	37	42	.4	42	42	.4
7	35	39	.1	10	18	.1	26	56	.5	30	34	.1	30	43	.4	43	40	.4	37	40	.4	40	40	.4
8	34	40	.1	09	20	.2	25	57	.5	29	35	.1	29	42	.5	42	41	.4	37	41	.4	41	41	.4
9	34	41	.1	08	21	.2	23	58	.6	27	36	.2	27	40	.5	40	41	.4	37	41	.4	41	41	.4
10	34	42	.1	06	23	.3	21	60	.6	25	37	.2	25	39	.6	39	42	.4	36	42	.4	42	42	.4
11	34	43	.2	05	24	.3	19	61	.7	24	38	.2	24	38	.6	38	42	.4	36	42	.4	42	42	.4
12	33	44	.2	03	25	.4	18	62	.7	22	40	.3	22	37	.6	37	43	.4	36	43	.4	43	43	.4
13	33	45	.2	02	27	.4	16	64	.8	20	41	.4	20	36	.7	36	43	.4	35	43	.4	43	43	.4
14	32	46	.2	01	28	.5	14	65	.8	18	42	.4	18	35	.7	35	44	.5	35	44	.5	44	44	.5
15	32	48	.3	6 59	29	.5	12	66	.9	17	43	.4	17	34	.8	34	44	.5	34	44	.5	44	44	.5
16	31	49	.3	58	31	.6	10	67	12.0	15	45	.5	15	32	.8	32	45	.5	32	45	.5	45	45	.5
17	30	50	.3	56	32	.6	08	68	.0	13	46	.6	13	31	.8	31	45	.5	31	45	.5	45	45	.5
18	30	52	.4	55	34	.6	07	69	.0	11	47	.6	11	30	.9	30	45	.5	30	45	.5	45	45	.5
19	29	53	.4	53	35	.7	05	70	.1	10	48	.6	10	30	.9	30	46	.5	30	46	.5	46	46	.5
20	28	54	.4	52	36	.7	03	71	.2	08	49	.7	08	29	.9	29	46	.5	29	46	.5	46	46	.5
21	28	55	.5	50	38	.8	01	72	.2	07	50	.7	07	28	15.0	28	46	.5	28	46	.5	46	46	.5
22	27	57	.5	48	39	.8	5 59	73	.2	05	52	.8	05	27	.0	27	46	.5	27	46	.5	46	46	.5
23	26	58	.5	47	40	.9	58	74	.3	03	53	.8	03	26	.0	26	46	.5	26	46	.5	46	46	.5
24	25	59	.6	45	42	.9	56	75	.4	02	54	.9	02	25	.1	25	47	.5	25	47	.5	47	47	.5
25	25	01	.6	44	43	11.0	54	76	.4	00	56	.9	00	24	.1	24	47	.5	24	47	.5	47	47	.5
26	24	02	.6	42	44	.0	52	77	.4	59	57	14.0	4 59	30	.1	24	47	.5	24	47	.5	47	47	.5
27	23	03	.7	40	45	.1	50	78	.5	57	58	.0	57	31	.1	23	47	.5	23	47	.5	47	47	.5
28	22	05	.7	38	47	.1	48	79	.6	56	59	.0	56	32	.2	22	47	.5	22	47	.5	47	47	.5
29	21	06	.8	37	48	.2	47	80	.6	54	00	.1	54	33	.2	21	47	.4	22	47	.4	47	47	.4
30	20	08	.8	35	49	.3	45	81	.7	53	01	.1	53	34	.2	20	47	.4	21	47	.4	47	47	.4
31	18	09	.8	34	50	.3	43	82	.7	53	01	.1	53	34	.2	20	47	.4	21	47	.4	47	47	.4
Total.	289.4		289.4	{ 28 d 29 d }		293.6 304.8	370.2		370.2	404.0		404.0	457.7		457.7	463.0		463.0	463.0		463.0	463.0		463.0

LATITUDE 44° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

Date.	JULY.			AUGUST.			SEPTEMBER.			OCTOBER.			NOVEMBER.			DECEMBER.		
	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.
1	Hrs. min. 4 21	Hrs. min. 7 47	Hrs. 15.4	Hrs. min. 4 48	Hrs. min. 7 24	Hrs. 14.6	Hrs. min. 5 23	Hrs. min. 6 36	Hrs. 13.2	Date. 1	Hrs. min. 5 58	Hrs. min. 5 41	Hrs. 11.7	Hrs. min. 6 37	Hrs. min. 4 51	Hrs. 10.2	Hrs. min. 7 15	Hrs. 9.1
2	21	46	.4	49	23	.6	24	35	.2	2	59	40	.7	38	49	.2	16	.1
3	22	46	.4	50	22	.5	25	33	.1	3	00	38	.6	40	48	.1	17	.1
4	22	46	.4	51	21	.5	27	31	.1	4	01	36	.6	41	47	.1	18	.1
5	23	46	.4	52	19	.4	28	29	.0	5	02	34	.5	42	45	.0	19	.0
6	24	45	.4	53	18	.4	29	28	.0	6	04	32	.5	43	44	.0	20	.0
7	24	45	.4	54	17	.4	30	26	12.9	7	05	31	.4	44	43	.0	21	.0
8	25	45	.3	56	15	.3	31	24	.9	8	06	29	.4	46	42	9.9	22	.0
9	26	44	.3	57	14	.3	32	22	.8	9	08	27	.3	47	41	.9	23	.0
10	27	43	.3	58	12	.2	33	20	.8	10	09	25	.3	49	40	.8	24	.0
11	28	43	.2	59	11	.2	34	19	.7	11	10	24	.2	50	38	.8	25	.0
12	29	42	.2	00	09	.2	36	17	.7	12	11	22	.2	51	37	.8	26	8.9
13	29	42	.2	02	08	.1	37	15	.6	13	12	20	.1	53	36	.7	26	.9
14	30	41	.2	03	06	.1	38	13	.6	14	13	19	.1	54	35	.7	27	.9
15	31	40	.2	04	05	.0	39	11	.5	15	15	17	.0	55	34	.6	28	.9
16	32	40	.1	05	03	.0	40	09	.5	16	16	15	.0	57	33	.6	29	.9
17	33	39	.1	06	02	13.9	41	08	.4	17	17	13	10.9	58	32	.6	30	.9
18	34	38	.1	07	00	.9	42	06	.4	18	19	12	.9	59	32	.5	30	.9
19	34	38	.1	08	59	.8	44	04	.3	19	20	10	.8	7 00	31	.5	31	.9
20	36	37	.0	10	57	.8	45	02	.3	20	21	09	.8	02	30	.5	31	.9
21	37	36	.0	11	55	.7	46	00	.2	21	22	07	.8	03	29	.4	32	.9
22	38	35	.0	12	54	.7	47	58	.2	22	24	06	.7	04	28	.4	32	.9
23	39	34	14.9	13	52	.6	48	56	.1	23	25	04	.6	06	28	.4	33	.9
24	40	33	.9	14	50	.6	49	55	.1	24	26	02	.6	07	27	.3	33	.9
25	40	32	.9	15	49	.6	50	53	.0	25	28	01	.6	08	26	.3	34	.9
26	41	31	.8	16	47	.6	52	51	.0	26	29	4 59	.5	09	26	.3	34	.9
27	42	30	.8	18	45	.5	53	49	11.9	27	30	57	.4	10	25	.2	34	.9
28	44	29	.8	19	44	.4	54	47	.9	28	32	56	.4	12	25	.2	34	.9
29	45	28	.7	20	42	.4	55	45	.8	29	33	55	.4	13	24	.2	35	.9
30	46	27	.7	21	40	.3	56	43	.8	30	34	54	.3	14	24	.2	35	.9
31	47	26	.6	22	38	.3	56	43	.8	31	35	52	.3	.....	24	.....	35	9.0
Total.....	468.2			432.9			375.0			340.6			289.4			277.5		

Total for the year, 4461.5. Total for leap year, 4472.7

LATITUDE 45° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

Date.	JANUARY.			FEBRUARY.			MARCH.			Date.	APRIL.			MAY.			JUNE.				
	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.		Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.		
1	Hrs. min. 7 39	Hrs. min. 4 29	Hrs. 8.8	Hrs. min. 7 20	Hrs. min. 5 08	Hrs. 9.8	Hrs. min. 6 38	Hrs. min. 5 47	Hrs. 11.2	1	Hrs. min. 5 40	Hrs. min. 6 28	Hrs. 12.8	Hrs. min. 4 49	Hrs. min. 7 05	Hrs. 14.3	Hrs. min. 4 16	Hrs. min. 7 39	Hrs. 15.4		
2	39	30	.9	19	09	.8	36	48	.2	2	38	29	.8	47	06	.3	16	40	.4		
3	39	31	.9	18	11	.9	34	50	.3	3	37	30	.9	46	08	.4	15	41	.4		
4	39	32	.9	17	12	.9	33	51	.3	4	35	31	.9	44	09	.4	15	42	.4		
5	38	33	.9	16	13	10.0	31	53	.4	5	33	32	13.0	43	10	.4	14	43	.5		
6	38	34	.9	14	15	.0	29	54	.4	6	31	34	.0	42	11	.5	14	43	.5		
7	38	35	9.0	13	16	.1	27	55	.5	7	29	35	.1	40	12	.5	13	44	.5		
8	38	36	.0	11	18	.1	25	56	.5	8	28	36	.1	39	14	.6	13	44	.5		
9	38	37	.0	10	19	.2	23	58	.6	9	26	37	.2	38	15	.6	13	45	.5		
10	37	38	.0	9	20	.2	22	59	.6	10	24	39	.2	36	16	.7	13	46	.5		
11	37	39	.0	7	22	.2	20	60	.7	11	22	40	.3	35	17	.7	13	46	.6		
12	37	41	.1	6	23	.3	18	02	.7	12	20	41	.4	34	18	.7	12	47	.6		
13	36	42	.1	4	25	.3	16	02	.8	13	19	42	.4	33	20	.8	12	47	.6		
14	35	43	.1	3	26	.4	14	04	.8	14	17	44	.4	32	21	.8	12	48	.6		
15	35	44	.2	1	28	.4	12	06	.9	15	15	45	.5	30	22	.9	12	48	.6		
16	34	46	.2	6	29	.5	11	07	.9	16	13	46	.6	29	23	.9	12	49	.6		
17	34	47	.2	5	31	.5	9	08	12.0	17	11	48	.6	28	24	.9	12	49	.6		
18	33	48	.3	5	32	.6	7	10	.0	18	10	49	.6	27	25	15.0	12	49	.6		
19	32	50	.3	5	33	.6	5	11	.1	19	8	50	.7	26	26	.0	12	50	.6		
20	32	51	.3	5	35	.7	3	12	.2	20	6	51	.7	25	27	.0	13	50	.6		
21	31	52	.4	5	36	.8	1	14	.2	21	5	52	.8	25	28	.1	13	50	.6		
22	30	54	.4	5	38	.8	5	15	.3	22	3	54	.8	24	29	.1	13	50	.6		
23	29	55	.4	4	39	.8	5	16	.3	23	1	55	.9	23	31	.1	13	51	.6		
24	28	56	.5	4	40	.9	5	17	.4	24	0	56	.9	22	32	.2	14	51	.6		
25	27	58	.5	4	42	11.0	5	18	.4	25	4	58	14.0	21	33	.2	14	51	.6		
26	26	59	.5	4	43	.0	5	20	.5	26	5	59	.0	20	34	.2	14	51	.6		
27	25	5	.6	4	44	.0	5	21	.5	27	7	00	.1	19	34	.3	15	51	.6		
28	24	02	.6	4	46	.1	4	22	.6	28	5	01	.1	19	35	.3	15	51	.6		
29	23	04	.7	3	47	.2	4	24	.6	29	5	02	.2	18	36	.3	16	51	.6		
30	22	05	.7	3	48	.2	4	25	.7	30	5	04	.2	17	37	.3	16	51	.6		
31	21	06	.8	3	49	.3	4	26	.7	31	5	04	.2	17	38	.4	16	50	.6		
Total.....			286.2	{ 28 d 291.9 29 d 303.1 }					405.2			460.9	466.6

LATITUDE 45° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

Date.	JULY.			AUGUST.			SEPTEMBER.			OCTOBER.			NOVEMBER.			DECEMBER.		
	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.
	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.
1	4 17	7 50	15.6	4 45	7 27	14.7	5 22	6 38	13.3	5 58	5 41	11.7	6 39	4 49	10.2	7 18	4 20	9.0
2	17	50	.5	46	26	.7	23	36	.2	59	39	.7	40	47	.1	20	20	.0
3	18	50	.5	47	25	.6	24	34	.2	00	38	.6	42	46	.1	21	19	.0
4	18	50	.5	49	23	.6	26	32	.1	02	36	.6	43	44	.0	22	19	.0
5	19	50	.5	50	22	.5	27	30	.1	03	34	.5	44	43	.0	23	19	8.9
6	20	49	.5	51	21	.5	28	28	.0	04	32	.5	46	42	9.9	24	19	.9
7	21	49	.5	52	19	.5	29	27	.0	06	30	.4	47	41	.9	25	19	.9
8	21	48	.4	53	18	.4	30	25	12.9	07	28	.4	48	39	.8	26	18	.9
9	22	48	.4	54	16	.4	31	23	.9	08	26	.3	50	38	.8	27	18	.9
10	23	47	.4	55	15	.3	33	21	.8	10	24	.2	51	37	.8	28	18	.8
11	24	47	.4	57	13	.3	34	19	.8	11	23	.2	52	36	.7	28	19	.8
12	25	46	.4	58	12	.2	35	17	.7	12	21	.1	54	35	.7	29	19	.8
13	26	45	.3	59	10	.2	36	15	.7	13	19	.1	55	34	.6	30	19	.8
14	26	45	.3	5 00	09	.1	37	14	.6	15	17	.0	57	33	.6	31	19	.8
15	27	44	.3	02	07	.1	39	12	.6	16	16	.0	58	31	.6	32	19	.8
16	28	43	.3	03	05	.0	40	10	.5	17	14	10.9	59	30	.5	33	19	.8
17	29	43	.2	04	04	.0	41	08	.4	18	12	.9	7 01	30	.5	33	19	.8
18	30	42	.2	05	02	.0	42	06	.4	20	11	.8	02	29	.4	34	20	.8
19	31	41	.2	06	01	13.9	44	04	.3	21	09	.8	04	28	.4	35	20	.8
20	32	40	.1	08	59	.9	45	02	.3	22	07	.7	05	27	.4	35	21	.8
21	33	39	.1	09	57	.8	46	00	.2	24	06	.7	06	26	.3	36	21	.8
22	34	38	.1	10	56	.8	47	58	.2	25	04	.6	07	25	.3	36	22	.8
23	35	37	.0	11	54	.7	48	56	.1	27	02	.6	09	25	.3	37	22	.8
24	36	36	.0	12	52	.7	49	54	.1	28	01	.5	10	24	.2	37	23	.8
25	37	35	.0	13	50	.6	51	53	.0	29	4 59	.5	11	23	.2	37	23	.8
26	38	34	14.9	15	49	.6	52	50	.0	31	57	.4	12	23	.2	38	24	.8
27	40	33	.9	16	47	.5	53	48	11.9	32	56	.4	14	22	.1	38	25	.8
28	41	32	.9	17	45	.5	55	47	.9	33	54	.3	15	21	.1	38	25	.8
29	42	31	.8	18	43	.4	56	45	.8	35	53	.3	16	21	.1	38	26.	.8
30	43	30	.8	19	42	.4	57	43	.8	36	51	.3	17	20	.0	38	27	.8
31	44	29	.7	21	40	.3	.....	43	.....	37	50	.2	.....	.....	.....	39	28	.8
Total.....	.....	.....	471.7	.....	.....	435.2	.....	.....	375.8	.....	.....	339.2	.....	.....	286.8	.....	.....	274.1

Total for the year, 4463.9. Total for leap year, 4475.1

LATITUDE 46° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

Date.	JANUARY.			FEBRUARY.			MARCH.			Date.	APRIL.			MAY.			JUNE.		
	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.		Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.
1	Hrs. min. 7 42	Hrs. min. 4 26	Hrs. 8.7	Hrs. min. 7 22	Hrs. min. 5 05	Hrs. 9.7	Hrs. min. 6 39	Hrs. min. 5 46	Hrs. 11.1	1	Hrs. min. 5 40	Hrs. min. 6 28	Hrs. 12.8	Hrs. min. 4 47	Hrs. min. 7 07	Hrs. 14.3	Hrs. min. 4 12	Hrs. min. 7 43	Hrs. 15.5
2	42	26	.7	21	07	.8	37	47	.2	2	38	30	.9	45	09	.4	12	44	.5
3	42	27	.8	20	08	.8	35	49	.2	3	36	31	.9	43	10	.4	11	44	.6
4	42	28	.8	19	10	.8	33	50	.3	4	34	32	13.0	42	11	.5	11	45	.6
5	42	29	.8	18	11	.9	31	52	.3	5	32	33	.0	41	13	.5	10	46	.6
6	42	30	.8	17	12	.9	30	53	.4	6	30	34	.1	39	14	.6	10	47	.6
7	42	32	.8	15	14	10.0	28	54	.4	7	28	36	.1	38	15	.6	10	48	.6
8	41	33	.8	13	15	.0	26	56	.5	8	26	37	.2	36	16	.7	09	48	.6
9	41	34	.9	12	17	.1	24	57	.6	9	24	39	.2	35	17	.7	09	49	.7
10	41	35	.9	11	18	.1	22	59	.6	10	23	40	.3	34	19	.7	09	49	.7
11	40	36	.9	10	19	.2	20	60	.7	11	21	41	.4	32	20	.8	09	50	.7
12	40	38	9.0	08	21	.2	18	01	.7	12	19	43	.4	31	21	.8	09	51	.7
13	39	39	.0	06	23	.3	16	03	.8	13	17	44	.4	30	23	.9	08	51	.7
14	39	40	.0	04	24	.3	15	04	.8	14	15	45	.5	29	24	.9	08	52	.7
15	38	41	.1	03	26	.4	13	05	.9	15	14	46	.6	28	25	15.0	08	52	.7
16	38	42	.1	01	27	.4	11	07	.9	16	12	48	.6	26	26	.0	08	53	.7
17	37	44	.1	00	29	.5	09	08	12.0	17	10	49	.6	25	27	.0	08	53	.8
18	36	45	.2	58	30	.5	07	09	.0	18	08	50	.7	24	28	.1	08	54	.8
19	35	47	.2	56	32	.6	05	11	.1	19	06	52	.8	23	30	.1	08	54	.8
20	34	48	.2	54	33	.6	03	12	.2	20	05	53	.8	22	31	.1	08	54	.8
21	34	49	.3	53	35	.7	01	14	.2	21	03	54	.9	21	32	.2	08	54	.8
22	33	51	.3	51	36	.8	59	15	.3	22	01	56	.9	20	33	.2	09	55	.8
23	32	52	.3	49	38	.8	57	16	.3	23	59	57	14.0	19	34	.2	09	55	.8
24	31	54	.4	47	39	.9	55	17	.4	24	58	58	.0	18	35	.3	10	55	.8
25	30	55	.4	46	41	.9	53	19	.4	25	56	7 00	.1	17	36	.3	10	55	.8
26	29	56	.5	44	42	11.0	51	20	.5	26	54	01	.1	16	37	.3	10	55	.8
27	28	58	.5	42	43	.0	49	22	.5	27	53	02	.2	16	38	.4	11	55	.7
28	27	59	.5	41	45	.1	47	23	.6	28	51	03	.2	15	39	.4	11	55	.7
29	26	5 01	.6	39	46	.1	46	24	.6	29	50	05	.2	14	40	.4	12	55	.7
30	25	03	.6	.....	.....	.....	44	25	.7	30	48	06	.3	14	41	.5	12	54	.7
31	23	04	.7	.....	.....	.....	42	27	.8	31	.....	.....	.....	13	42	.5	.....	.....	.....
Total.....			282.9	{ 28 d 29 d		290.3 301.4			370.0	.....			407.2			463.8			470.9

LATITUDE 46° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

Date.	JULY.			AUGUST.			SEPTEMBER.			OCTOBER.			NOVEMBER.			DECEMBER.					
	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.			
1	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.			
2	4 13	7 54	15.7	4 42	7 30	14.8	5 20	6 39	13.3	5 58	5 41	11.7	6 41	4 46	10.1	7 22	4 16	8.9			
3	14	54	.7	44	29	.8	22	37	.3	6 00	39	.7	42	45	.0	23	16	.9			
4	14	54	.7	45	27	.7	23	35	.2	01	37	.6	44	44	.0	24	16	.9			
5	15	54	.6	46	26	.7	24	33	.1	02	35	.6	45	42	9.9	25	16	.8			
6	15	53	.6	47	24	.6	26	31	.1	04	33	.5	47	41	.9	26	15	.8			
7	16	53	.6	48	23	.6	27	29	.0	05	31	.4	48	39	.9	27	15	.8			
8	17	53	.6	49	22	.5	28	27	.0	06	30	.4	49	38	.8	29	15	.8			
9	18	52	.6	51	20	.5	30	26	12.9	08	28	.3	51	37	.8	30	15	.8			
10	18	52	.6	52	19	.4	31	24	.9	09	26	.3	52	36	.7	30	15	.7			
11	19	51	.5	53	17	.4	32	22	.8	10	24	.2	54	35	.7	31	15	.7			
12	20	50	.5	54	16	.4	33	20	.8	12	22	.2	55	33	.6	32	15	.7			
13	21	50	.5	56	14	.3	34	18	.7	13	20	.1	56	32	.6	33	15	.7			
14	22	49	.4	57	12	.3	36	16	.7	14	18	.1	58	31	.6	34	15	.7			
15	23	48	.4	58	11	.2	37	14	.6	16	16	.0	59	30	.5	35	15	.7			
16	24	48	.4	59	09	.2	38	12	.6	17	14	.0	7 01	29	.5	36	15	.7			
17	25	47	.4	5 01	08	.1	39	10	.5	18	13	10.9	02	28	.4	36	15	.6			
18	26	46	.3	02	06	.1	41	08	.5	20	11	.9	04	27	.4	37	16	.6			
19	27	45	.3	03	04	.0	42	06	.4	21	09	.8	05	26	.3	38	16	.6			
20	28	44	.3	04	03	.0	44	04	.3	22	08	.8	06	25	.3	38	16	.6			
21	29	43	.2	06	01	13.9	45	02	.3	24	06	.7	08	24	.3	39	17	.6			
22	30	42	.2	07	59	.9	46	00	.2	25	04	.6	09	23	.2	39	17	.6			
23	31	41	.2	08	57	.8	47	58	.2	27	02	.6	10	22	.2	40	18	.6			
24	32	40	.1	09	56	.8	48	56	.1	28	01	.5	12	22	.2	40	18	.6			
25	33	39	.1	11	54	.7	50	54	.1	30	4 59	.5	13	21	.1	41	19	.6			
26	34	38	.1	12	52	.7	51	52	.0	31	57	.4	14	20	.1	41	20	.6			
27	35	37	.0	13	50	.6	52	50	.0	32	56	.4	16	19	.1	42	20	.6			
28	36	36	.0	14	48	.6	54	48	11.9	34	54	.3	17	19	.0	42	21	.6			
29	38	35	.0	16	46	.5	55	46	.9	35	52	.3	18	18	.0	42	22	.7			
30	39	34	14.9	17	45	.5	56	44	.8	37	51	.2	19	18	.0	42	22	.7			
31	40	33	.9	18	43	.4	57	43	.8	38	49	.2	21	17	8.9	42	23	.7			
41	41	32	.8	19	41	.4	-----	43	-----	40	48	.1	-----	-----	-----	42	24	.7			
Total.....			475.2	-----			-----			-----			-----			-----			-----		
																			269.6		

LATITUDE 47° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

JANUARY.				FEBRUARY.				MARCH.				APRIL.				MAY.				JUNE.				
Date.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.			
1	7 46	4 22	8.6	7 25	5 02	9.6	6 40	5 45	11.1	1	5 39	6 29	12.8	4 44	7 10	14.4	4 08	7 47	15.6					
2	46	23	.6	24	04	.7	38	46	.1	2	37	30	.9	42	11	.5	08	48	.7					
3	46	23	.6	23	06	.7	36	48	.2	3	35	32	.9	41	13	.5	07	48	.7					
4	46	24	.6	21	07	.8	34	49	.3	4	33	33	13.0	39	14	.6	07	49	.7					
5	46	25	.7	20	09	.8	32	51	.3	5	31	34	.0	37	15	.6	06	50	.7					
6	46	27	.7	19	10	.9	30	52	.4	6	29	36	.1	35	17	.7	06	51	.8					
7	45	28	.7	17	12	.9	29	54	.4	7	27	37	.2	34	18	.7	06	52	.8					
8	45	29	.7	16	13	10.0	27	55	.5	8	25	38	.2	32	19	.8	05	52	.8					
9	45	30	.7	14	15	.0	25	57	.5	9	23	40	.3	31	20	.8	05	53	.8					
10	44	31	.8	13	16	.1	23	58	.6	10	21	41	.3	29	22	.8	05	54	.8					
11	44	32	.8	12	18	.1	21	59	.6	11	19	43	.4	28	23	.9	04	54	.8					
12	44	34	.8	10	19	.2	19	01	.7	12	18	44	.4	27	24	.9	04	55	.8					
13	43	35	.9	08	21	.2	17	02	.8	13	16	45	.5	25	26	15.0	04	55	.9					
14	42	36	.9	06	22	.3	15	04	.8	14	14	47	.5	24	27	.0	04	56	.9					
15	42	38	.9	05	24	.3	13	05	.9	15	12	48	.6	23	28	.1	04	56	.9					
16	41	39	9.0	03	26	.4	11	06	.9	16	10	50	.7	22	29	.1	04	57	.9					
17	40	40	.0	01	27	.4	09	08	12.0	17	08	51	.7	21	31	.1	04	58	.9					
18	40	42	.0	59	29	.5	07	09	.0	18	06	52	.8	20	32	.2	04	58	.9					
19	39	43	.1	58	30	.5	05	11	.1	19	05	54	.8	19	33	.2	04	58	.9					
20	38	45	.1	56	32	.6	03	12	.2	20	03	55	.9	18	34	.3	04	58	.9					
21	37	46	.2	54	33	.6	01	14	.2	21	01	56	.9	17	35	.3	04	59	.9					
22	36	47	.2	52	35	.7	59	15	.3	22	4 59	58	14.0	16	36	.3	05	59	.9					
23	36	49	.2	51	36	.8	57	16	.3	23	57	59	.0	14	38	.4	05	59	.9					
24	34	50	.3	49	38	.8	55	18	.4	24	56	00	.1	13	39	.4	05	59	.9					
25	33	52	.3	47	39	.9	53	19	.4	25	54	02	.1	13	40	.4	06	59	.9					
26	32	53	.4	45	41	.9	51	21	.5	26	52	03	.2	12	41	.5	06	59	.9					
27	31	55	.4	44	42	11.0	49	22	.6	27	51	04	.2	11	42	.5	07	59	.9					
28	30	57	.4	42	44	.0	47	23	.6	28	49	06	.3	11	43	.5	07	59	.9					
29	29	58	.5	40	45	.1	45	25	.7	29	47	07	.3	10	44	.6	08	59	.9					
30	27	00	.5	-----	-----	-----	43	26	.7	30	46	08	.4	10	45	.6	08	59	.8					
31	26	01	.6	-----	-----	-----	41	28	.8	31	-----	-----	-----	09	46	.6	08	-----	-----					
Total.....			279.2	{ 28 d 288.7 29 d 299.8 }			-----			-----			408.5			-----			-----			475.1		

LATITUDE 47° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

Date.	JULY.			AUGUST.			SEPTEMBER.			OCTOBER.			NOVEMBER.			DECEMBER.		
	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.
1	Hrs. min. 4 09	Hrs. min. 7 58	Hrs. 15.8	Hrs. min. 4 39	Hrs. min. 7 33	Hrs. 14.9	Hrs. min. 5 19	Hrs. min. 6 40	Hrs. 13.4	Hrs. min. 5 59	Hrs. min. 5 40	Hrs. 11.7	Hrs. min. 6 43	Hrs. min. 4 44	Hrs. 10.0	Hrs. min. 7 26	Hrs. min. 4 13	Hrs. 8.8
2	09	58	.8	40	32	.9	20	38	.3	6 00	38	.6	45	43	.0	27	12	.8
3	10	58	.8	42	30	.8	22	37	.2	02	36	.6	46	41	9.9	28	12	.7
4	11	58	.8	43	29	.8	23	35	.2	03	34	.5	48	40	.9	29	12	.7
5	11	57	.8	44	27	.7	25	33	.1	04	32	.5	49	38	.8	30	12	.7
6	12	57	.8	45	26	.7	26	31	.1	06	30	.4	50	37	.8	31	11	.7
7	13	57	.7	47	24	.6	27	29	.0	07	29	.4	52	36	.7	32	11	.6
8	14	56	.7	48	23	.6	28	27	.0	08	27	.3	54	34	.7	33	11	.6
9	14	56	.7	49	22	.5	30	25	12.9	10	25	.2	55	33	.6	34	11	.6
10	15	55	.7	50	20	.5	31	23	.9	11	23	.2	56	32	.6	35	11	.6
11	16	54	.6	52	18	.4	32	21	.8	13	21	.1	58	30	.5	36	11	.6
12	17	54	.6	53	17	.4	34	19	.8	14	19	.1	59	29	.5	37	11	.6
13	18	53	.6	54	15	.3	35	17	.7	16	17	.0	01	28	.5	38	11	.6
14	19	52	.6	56	13	.3	36	15	.6	17	15	.0	02	27	.4	39	11	.5
15	20	52	.5	57	11	.2	37	13	.6	18	13	10.9	04	26	.4	40	11	.5
16	21	51	.5	58	10	.2	39	11	.5	20	12	.9	05	24	.3	40	11	.5
17	22	50	.5	00	08	.1	40	09	.5	21	10	.8	07	23	.3	41	12	.5
18	23	49	.4	01	06	.1	42	07	.4	22	08	.8	08	22	.2	42	12	.5
19	24	48	.4	02	05	.0	43	04	.4	24	06	.7	10	21	.2	42	12	.5
20	25	47	.4	04	03	.0	44	02	.3	25	04	.6	11	21	.2	43	13	.5
21	26	46	.3	05	01	13.9	46	00	.2	27	03	.6	12	20	.1	43	13	.5
22	27	45	.3	06	59	.9	47	58	.2	28	01	.5	14	19	.1	44	14	.5
23	29	44	.3	08	57	.8	48	56	.1	30	59	.5	15	18	.0	44	14	.5
24	30	43	.2	09	56	.8	50	54	.1	31	57	.4	16	17	.0	45	15	.5
25	31	42	.2	10	54	.7	51	52	.0	33	55	.4	18	16	.0	45	16	.5
26	32	41	.1	11	52	.7	52	50	.0	34	54	.3	19	16	8.9	46	16	.5
27	33	39	.1	13	50	.6	54	48	11.9	36	52	.3	20	15	.9	46	17	.5
28	34	38	.1	14	48	.6	55	46	.9	37	50	.2	22	15	.9	46	18	.5
29	35	37	.0	16	46	.5	56	44	.8	39	49	.2	23	14	.9	46	19	.5
30	37	36	.0	17	44	.5	58	42	.7	40	47	.1	24	13	.8	46	20	.6
31	38	35	14.9	18	42	.4	.....	42	.....	42	46	.1	.....	20	.....	46	20	.6
Total.....	.....	.....	479.2	.....	.....	439.4	.....	.....	376.6	.....	.....	336.9	.....	.....	281.1	.....	.....	265.8

Total for the year, 4467.7. Total for leap year, 4478.8

LATITUDE 48° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

JANUARY.				FEBRUARY.				MARCH.				APRIL.				MAY.				JUNE.			
Date.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	Date.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	
1	Hrs. min. 7 50	Hrs. min. 4 18	Hrs. 8.5	Hrs. min. 7 28	Hrs. min. 5 00	Hrs. 9.5	1	Hrs. min. 5 38	Hrs. min. 6 30	Hrs. 12.9	Hrs. min. 4 42	Hrs. min. 7 12	Hrs. 14.5	Hrs. min. 4 04	Hrs. min. 7 51	Hrs. 15.8							
2	50	19	.5	26	01	.6	2	36	31	.9	40	14	.6	04	52	.8							
3	50	20	.5	25	03	.6	3	34	33	13.0	38	15	.6	03	52	.8							
4	50	21	.5	24	05	.7	4	32	34	.0	37	17	.7	03	53	.8							
5	50	22	.5	22	06	.7	5	30	36	.1	35	18	.7	02	54	.9							
6	49	23	.6	21	08	.8	6	28	37	.2	34	19	.8	02	55	.9							
7	49	24	.6	19	09	.8	7	26	38	.2	32	21	.8	01	56	.9							
8	49	25	.6	18	11	.9	8	24	40	.3	31	22	.9	01	57	.9							
9	49	26	.6	16	13	10.0	9	22	41	.3	29	23	.9	01	57	.9							
10	48	27	.6	15	14	.0	10	20	43	.4	28	25	15.0	00	58	16.0							
11	48	29	.7	13	16	.0	11	18	44	.4	26	26	.0	00	59	.0							
12	47	30	.7	12	17	.1	12	16	45	.5	25	28	.0	00	59	.0							
13	47	31	.8	10	19	.2	13	14	47	.5	24	29	.1	00	8	.0							
14	46	33	.8	08	21	.2	14	12	48	.6	22	30	.1	00	00	.0							
15	45	34	.8	06	22	.3	15	10	50	.7	21	31	.2	00	01	.0							
16	45	36	.8	05	24	.3	16	08	51	.7	20	33	.2	00	01	.0							
17	44	37	.9	03	26	.4	17	06	53	.8	18	34	.3	00	02	.0							
18	43	38	.9	01	27	.4	18	05	54	.8	17	35	.3	00	02	.0							
19	42	40	9.0	59	29	.5	19	03	55	.9	16	36	.3	00	02	.0							
20	41	41	.0	58	30	.5	20	01	57	.9	15	38	.4	00	03	.0							
21	40	43	.0	56	32	.6	21	01	58	14.0	14	39	.4	00	03	.0							
22	40	44	.1	54	33	.7	22	59	00	.0	13	40	.5	00	03	.0							
23	39	46	.1	52	35	.7	23	56	01	.1	12	41	.5	01	03	.0							
24	38	47	.2	50	36	.8	24	54	03	.2	11	43	.5	01	03	.0							
25	36	49	.2	49	38	.8	25	52	04	.2	10	44	.6	01	03	.0							
26	35	50	.3	47	39	.9	26	50	05	.3	09	45	.6	02	03	.0							
27	34	52	.3	45	41	.9	27	48	07	.3	08	46	.6	02	03	.0							
28	33	54	.4	43	42	11.0	28	46	08	.4	07	47	.7	03	03	.0							
29	32	55	.4	41	44	.0	29	44	10	.4	06	48	.7	03	03	.0							
30	30	57	.4	41	44	.....	30	42	12	.5	05	49	.7	03	03	.0						
31	29	58	.5	40	28	.....	31	40	28	.8	05	50	.8	04	03	.0						
Total.....			275.8	{ 28 d 29 d }			.....			369.7	.....			410.5	.....			471.0	.....			478.7

LATITUDE 48° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

Date.	JULY.			AUGUST.			Date.	SEPTEMBER.			OCTOBER.			NOVEMBER.			DECEMBER.		
	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.		Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.
	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.		Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.
1	4 04	8 03	16.0	4 36	7 36	15.0	1	5 59	5 40	11.7	6 45	4 42	10.0	7 29	4 09	8.7	7 29	4 09	8.7
2	05	02	.0	37	35	.0	2	6 01	38	.6	47	41	9.9	31	09	.6	31	09	.6
3	06	02	15.9	39	33	14.9	3	02	36	.6	48	39	.8	32	08	.6	32	08	.6
4	06	02	.9	40	32	.9	4	04	34	.5	50	38	.8	33	08	.6	33	08	.6
5	07	02	.9	41	30	.8	5	05	32	.4	51	36	.8	34	08	.6	34	08	.6
6	08	01	.9	43	29	.8	6	07	30	.4	53	35	.7	35	08	.5	35	08	.5
7	09	01	.9	44	27	.7	7	08	28	.3	54	33	.6	36	07	.5	36	07	.5
8	10	00	.8	45	26	.7	8	09	26	.3	56	32	.6	37	07	.5	37	07	.5
9	10	00	.8	46	24	.6	9	11	24	.2	58	30	.5	37	07	.5	37	07	.5
10	11	59	.8	48	22	.6	10	12	22	.2	59	29	.5	38	07	.5	38	07	.5
11	12	59	.8	49	21	.5	11	14	20	.1	7	28	.4	40	07	.5	40	07	.5
12	13	58	.8	51	19	.5	12	15	20	.8	02	26	.4	41	07	.4	41	07	.4
13	14	57	.7	52	17	.4	13	17	17	.7	04	25	.4	42	07	.4	42	07	.4
14	15	56	.7	53	16	.4	14	18	15	.7	05	24	.3	43	07	.4	43	07	.4
15	16	56	.7	55	14	.3	15	19	13	.6	07	23	.3	44	07	.4	44	07	.4
16	17	55	.6	56	12	.3	16	21	11	.6	08	21	.2	44	07	.4	44	07	.4
17	18	54	.6	57	10	.2	17	22	09	.5	10	20	.2	45	08	.4	45	08	.4
18	19	53	.6	59	09	.2	18	24	07	.4	12	19	.1	46	08	.4	46	08	.4
19	20	52	.5	00	07	.1	19	25	05	.4	13	18	.1	46	08	.4	46	08	.4
20	21	51	.5	02	05	.1	20	27	03	.3	14	17	.1	47	09	.4	47	09	.4
21	23	50	.4	03	03	.0	21	28	01	.3	15	17	.0	47	09	.4	47	09	.4
22	24	49	.4	04	01	.0	22	30	59	.2	17	16	.0	48	10	.4	48	10	.4
23	25	48	.4	06	59	13.9	23	31	58	.1	4	15	8.9	48	10	.4	48	10	.4
24	26	47	.3	07	57	.8	24	33	56	.4	19	14	.9	49	11	.4	49	11	.4
25	27	46	.3	08	56	.8	25	34	54	.1	20	13	.9	49	12	.4	49	12	.4
26	28	44	.3	10	54	.7	26	36	52	.0	21	12	.8	50	12	.4	50	12	.4
27	30	43	.2	11	52	.7	27	38	50	11.9	23	12	.8	50	13	.4	50	13	.4
28	31	42	.2	12	50	.6	28	39	48	.8	24	11	.8	50	14	.4	50	14	.4
29	32	40	.1	14	48	.6	29	41	47	.8	25	10	.7	50	15	.4	50	15	.4
30	33	39	.1	15	46	.5	30	42	45	.7	27	10	.7	50	16	.4	50	16	.4
31	35	38	.0	17	44	.4	31	44	44	.0	28	10	.7	50	17	.4	50	17	.4
Total.....			483.1			442.0				377.2			335.6			278.2			262.1

Total for the year, 4470.8. Total for leap year, 4481.8

LATITUDE 49° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

Date.	JANUARY.			FEBRUARY.			Date.	MARCH.			APRIL.			MAY.			JUNE.		
	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.		Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.
	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.		Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.
1	7 54	4 14	8.3	7 31	4 57	9.4	1	5 37	6 31	12.9	4 39	7 15	14.6	4 00	7 55	15.9	4 00	7 55	15.9
2	54	14	.3	29	59	.5	2	35	32	13.0	37	17	.7	3 59	56	.9	3 59	56	.9
3	54	15	.4	28	00	.5	3	33	34	.0	35	18	.7	59	57	16.0	59	57	16.0
4	54	16	.4	26	02	.6	4	31	35	.1	33	20	.8	58	58	.0	58	58	.0
5	54	17	.4	25	04	.6	5	29	36	.1	31	21	.8	58	59	.0	58	59	.0
6	54	19	.4	23	05	.7	6	27	38	.2	27	23	.9	57	8 00	.0	57	8 00	.0
7	53	20	.4	22	07	.8	7	25	40	.2	25	24	.9	57	01	.1	57	01	.1
8	53	21	.5	20	09	.8	8	23	41	.3	23	25	.3	56	01	.1	56	01	.1
9	53	22	.5	18	10	.9	9	20	43	.4	20	27	.4	56	02	.1	56	02	.1
10	52	23	.5	17	12	.9	10	19	44	.4	19	28	.4	56	03	.1	56	03	.1
11	52	25	.5	15	14	10.0	11	17	45	.5	17	30	.5	55	03	.1	55	03	.1
12	51	26	.6	14	15	.0	12	15	47	.5	15	31	.5	55	04	.1	55	04	.1
13	51	27	.6	12	17	.1	13	13	48	.6	13	32	.6	55	05	.2	55	05	.2
14	50	29	.6	10	19	.1	14	10	50	.7	10	34	.7	55	05	.2	55	05	.2
15	49	30	.7	08	20	.2	15	08	52	.7	08	35	.7	55	06	.2	55	06	.2
16	48	32	.7	07	22	.3	16	06	53	.8	06	36	.8	55	06	.2	55	06	.2
17	48	33	.8	05	24	.3	17	04	55	.8	04	38	.8	55	07	.2	55	07	.2
18	47	35	.8	03	25	.4	18	03	56	.9	03	39	.9	55	07	.2	55	07	.2
19	46	36	.8	01	27	.4	19	01	57	.9	01	40	.9	55	08	.2	55	08	.2
20	45	38	.9	6 59	28	.5	20	03	59	14.0	4 59	42	.5	55	08	.2	55	08	.2
21	44	39	.9	57	30	.5	21	00	7 00	.1	57	43	.6	55	08	.2	55	08	.2
22	43	41	9.0	56	32	.6	22	58	02	.1	55	44	.6	55	08	.2	55	08	.2
23	42	42	.0	54	33	.7	23	56	04	.2	53	45	.6	56	08	.2	56	08	.2
24	41	44	.0	52	35	.7	24	54	05	.2	51	47	.7	56	08	.2	56	08	.2
25	40	46	.1	50	37	.8	25	52	06	.3	49	48	.7	56	08	.2	56	08	.2
26	38	47	.2	48	38	.8	26	50	08	.3	48	49	.7	57	08	.2	57	08	.2
27	37	49	.2	46	40	.9	27	48	09	.4	46	50	.8	57	08	.2	57	08	.2
28	36	51	.2	44	41	11.0	28	46	11	.4	44	51	.8	58	08	.2	58	08	.2
29	35	52	.3	42	43	.0	29	44	12	.5	42	52	.8	58	08	.2	58	08	.2
30	33	54	.3	41	44	.0	30	41	14	.6	41	54	.9	59	08	.1	59	08	.1
31	32	55	.4	39	29	.8	31	39	14	.6	41	55	.9	59	08	.1	59	08	.1
Total.....			271.7		{ 28 d 29 d }	285.0 296.0				369.5			412.1			474.7			483.9

LATITUDE 49° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

Date.	JULY.			AUGUST.			Date.	SEPTEMBER.			OCTOBER.			NOVEMBER.			DECEMBER.		
	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.		Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.	Sunrise.	Sunset.	Total possi-ble.
	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.		Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.
1	4 00	8 08	16.1	4 33	7 40	15.1	1	5 16	6 43	13.4	6 00	5 39	11.7	6 48	4 40	9.9	7 33	4 05	8.5
2	00 00	07 07	.1	34 34	38 38	.1	2	18 18	41 41	.4	01 01	37 37	.6	49 49	38 38	.8	35 35	05 05	.5
3	01 01	07 07	.1	35 35	37 37	.0	3	19 19	39 39	.3	03 03	35 35	.5	51 51	37 37	.8	36 36	04 04	.5
4	02 02	07 07	.1	37 37	35 35	.0	4	21 21	37 37	.3	04 04	33 33	.5	52 52	35 35	.7	37 37	04 04	.4
5	02 02	06 06	.1	38 38	34 34	14.9	5	22 22	35 35	.2	06 06	31 31	.4	54 54	33 33	.7	38 38	04 04	.4
6	03 03	06 06	.0	40 40	32 32	.9	6	24 24	33 33	.2	07 07	29 29	.4	56 56	32 32	.6	39 39	03 03	.4
7	04 04	05 05	.0	41 41	30 30	.8	7	25 25	31 31	.1	09 09	27 27	.3	57 57	30 30	.6	40 40	03 03	.4
8	05 05	05 05	.0	42 42	29 29	.8	8	26 26	29 29	.0	10 10	25 25	.2	59 59	29 29	.5	41 41	03 03	.4
9	06 06	04 04	.0	44 44	27 27	.7	9	28 28	27 27	.0	12 12	23 23	.2	7 00	28 28	.4	42 42	03 03	.3
10	07 07	04 04	15.9	45 45	25 25	.7	10	29 29	25 25	12.9	13 13	21 21	.1	02 02	26 26	.4	43 43	03 03	.3
11	08 08	03 03	.9	46 46	24 24	.6	11	31 31	22 22	.9	15 15	19 19	.1	04 04	25 25	.4	44 44	03 03	.3
12	09 09	02 02	.9	48 48	22 22	.6	12	32 32	20 20	.8	16 16	17 17	.0	05 05	23 23	.3	45 45	03 03	.3
13	09 09	02 02	.9	49 49	20 20	.5	13	33 33	18 18	.7	18 18	15 15	10.9	07 07	22 22	.3	46 46	02 02	.2
14	10 10	01 01	.8	51 51	18 18	.5	14	35 35	16 16	.7	19 19	13 13	.9	08 08	21 21	.2	47 47	03 03	.3
15	11 11	00 00	.8	52 52	16 16	.4	15	36 36	14 14	.6	21 21	11 11	.8	10 10	20 20	.2	48 48	03 03	.2
16	13 13	59 59	.8	54 54	14 14	.3	16	38 38	12 12	.6	22 22	09 09	.8	12 12	18 18	.1	49 49	03 03	.2
17	14 14	58 58	.7	55 55	13 13	.3	17	39 39	09 09	.5	24 24	07 07	.7	13 13	17 17	.1	50 50	03 03	.2
18	15 15	57 57	.7	56 56	11 11	.2	18	41 41	07 07	.4	25 25	05 05	.7	15 15	16 16	.0	51 51	04 04	.2
19	16 16	56 56	.7	58 58	09 09	.2	19	42 42	05 05	.4	27 27	03 03	.6	16 16	15 15	.0	51 51	04 04	.2
20	17 17	55 55	.6	59 59	07 07	.1	20	44 44	03 03	.3	29 29	01 01	.5	18 18	14 14	8.9	51 51	04 04	.2
21	19 19	54 54	.6	5 01	05 05	.1	21	45 45	01 01	.3	30 30	4 59	.5	19 19	13 13	.9	52 52	05 05	.2
22	20 20	53 53	.5	02 02	03 03	.0	22	47 47	59 59	.2	32 32	57 57	.4	21 21	12 12	.8	52 52	05 05	.2
23	21 21	52 52	.5	04 04	01 01	.0	23	48 48	56 56	.1	33 33	56 56	.4	22 22	11 11	.8	53 53	06 06	.2
24	22 22	50 50	.5	05 05	6 59	13.9	24	50 50	54 54	.1	35 35	54 54	.3	24 24	10 10	.8	53 53	06 06	.2
25	23 23	49 49	.4	06 06	58 58	.9	25	51 51	52 52	.0	36 36	52 52	.3	25 25	09 09	.7	54 54	07 07	.2
26	25 25	48 48	.4	08 08	56 56	.8	26	52 52	50 50	.0	38 38	50 50	.2	27 27	08 08	.7	54 54	08 08	.2
27	26 26	47 47	.3	09 09	54 54	.7	27	54 54	48 48	11.9	40 40	48 48	.1	28 28	08 08	.7	54 54	08 08	.2
28	27 27	45 45	.3	11 11	51 51	.7	28	55 55	46 46	.8	41 41	46 46	.1	29 29	07 07	.6	54 54	09 09	.2
29	28 28	44 44	.3	12 12	49 49	.6	29	57 57	44 44	.8	43 43	45 45	.0	31 31	06 06	.6	54 54	10 10	.3
30	30 30	42 42	.2	14 14	47 47	.6	30	58 58	42 42	.7	44 44	43 43	.0	32 32	06 06	.6	54 54	11 11	.3
31	31 31	41 41	.2	15 15	45 45	.5	31	.....	.....	.....	46 46	41 41	9.9	.....	.....	.....	54 54	12 12	.3
Total.....			487.4			444.5				377.6			334.1			275.1			257.0

Total for the year, 4472.6. Total for leap year, 4483.6

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

JANUARY.				FEBRUARY.			MARCH.			APRIL.			MAY.			JUNE.		
Date.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.
1	Hrs. 7 59	Hrs. min. 4 09	Hrs. 8.2	Hrs. 7 33	Hrs. min. 4 54	Hrs. 9.4	Hrs. 6 43	Hrs. min. 5 42	Hrs. 11.0	Hrs. 5 36	Hrs. min. 6 31	Hrs. 12.9	Hrs. 4 36	Hrs. min. 7 18	Hrs. 14.7	Hrs. 3 56	Hrs. min. 8 00	Hrs. 16.1
2	59	10	.2	32	56	.4	41	44	.0	34	33	13.0	34	20	.8	55	01	.1
3	59	11	.2	30	58	.4	39	45	.1	32	35	.0	32	21	.8	54	02	.1
4	58	12	.2	29	59	.5	37	47	.2	30	36	.1	31	23	.9	54	03	.2
5	58	13	.2	27	51	.6	35	48	.2	28	38	.2	29	24	.9	53	04	.2
6	58	14	.3	26	53	.6	33	50	.3	26	39	.2	27	26	15.0	52	04	.2
7	58	16	.3	24	55	.7	31	52	.4	24	41	.3	26	27	.0	52	05	.2
8	57	17	.3	23	56	.7	28	53	.4	21	42	.4	24	29	.1	52	06	.2
9	57	18	.4	21	58	.8	26	55	.5	19	44	.4	22	30	.1	51	07	.3
10	56	19	.4	19	59	.8	24	56	.5	17	46	.5	21	32	.2	51	08	.3
11	56	21	.4	18	59	.9	22	58	.6	15	47	.5	20	33	.2	50	08	.3
12	55	22	.4	16	59	10.0	20	59	.7	13	49	.6	18	34	.3	50	09	.3
13	55	23	.5	14	59	.0	18	59	.7	11	50	.7	16	36	.3	50	10	.3
14	54	25	.5	12	59	.1	15	59	.8	09	52	.7	15	37	.4	50	10	.3
15	53	26	.6	10	59	.1	13	59	.9	07	53	.8	14	39	.4	50	11	.4
16	52	28	.6	09	59	.2	11	59	.9	05	55	.8	12	40	.5	50	11	.4
17	52	29	.6	07	59	.2	09	59	12.0	02	56	.9	11	42	.5	50	12	.4
18	51	31	.7	05	59	.3	07	59	.0	01	58	14.0	10	43	.6	50	12	.4
19	50	32	.7	03	59	.4	05	59	.1	59	59	.0	08	44	.6	50	12	.4
20	49	34	.8	01	59	.4	03	59	.2	57	59	.1	07	46	.6	50	13	.4
21	48	36	.8	6 59	59	.5	00	59	.2	55	59	.1	06	47	.7	50	13	.4
22	46	37	.8	57	59	.6	58	59	.3	53	59	.2	05	48	.7	50	13	.4
23	45	39	.9	55	59	.6	56	59	.4	50	59	.3	04	49	.8	51	13	.4
24	44	41	.9	53	59	.7	54	59	.4	49	59	.3	03	51	.8	51	13	.4
25	43	42	9.0	51	59	.7	52	59	.5	47	59	.4	02	52	.8	51	13	.4
26	42	44	.0	49	59	.8	50	59	.5	45	59	.4	00	53	.9	52	13	.4
27	40	46	.1	48	59	.8	47	59	.6	43	59	.5	3 59	54	.9	52	13	.4
28	39	47	.1	45	59	.9	45	59	.7	41	59	.5	58	56	16.0	53	13	.3
29	38	49	.2	43	59	11.0	43	59	.7	39	59	.6	58	57	.0	53	13	.3
30	36	51	.2	41	59	.8	41	59	.8	38	59	.6	57	58	.0	54	13	.3
31	35	52	.3	38	59	.9	38	59	.9	30	59	.6	56	59	.0	54	13	.3
Total.....	267.8			{ 28 d 283.1 29 d 294.1 }			369.5			414.0			478.5			489.2		

LATITUDE 50° NORTH.

Table showing time of sunrise and sunset and hours of possible sunshine (mean solar time).

Date.	JULY.			AUGUST.			SEPTEMBER.			OCTOBER.			NOVEMBER.			DECEMBER.		
	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.	Sunrise.	Sunset.	Total possible.
	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.	Hrs. min.	Hrs. min.	Hrs.
1	3 55	8 12	16.3	4 29	7 43	15.2	5 15	6 45	13.5	6 00	5 39	11.6	6 50	4 37	9.8	7 37	4 01	8.4
2	56	12 12	.3	31	41	.2	16	43	.4	02	37	.6	52	36	.7	39	01	.4
3	56	12 12	.3	32	40	.1	18	40	.4	03	35	.5	53	34	.7	40	00	.3
4	57	11 11	.2	33	38	.1	20	38	.3	05	33	.5	55	32	.6	41	00	.3
5	58	11 11	.2	35	37	.0	21	36	.2	06	31	.4	57	31	.6	42	3	.3
6	59	10 10	.2	36	35	.0	23	34	.2	08	28	.3	58	29	.5	43	59	.3
7	4 00	10 10	.2	38	33	14.9	24	32	.1	10	26	.3	7 00	28	.5	45	59	.2
8	00	09 09	.2	39	32	.9	25	30	.1	11	24	.2	02	26	.4	46	59	.2
9	01	09 09	.1	40	30	.8	27	28	.0	12	22	.2	03	25	.4	47	58	.2
10	02	08 08	.1	42	28	.8	28	25	.0	14	20	.1	05	23	.3	48	58	.2
11	03	07 07	.1	44	26	.7	30	23	12.9	16	18	.0	07	22	.2	49	58	.2
12	04	07 07	.0	45	25	.7	31	21	.8	17	16	.0	08	20	.2	50	58	.1
13	05	06 06	.0	47	23	.6	33	19	.8	19	14	10.9	10	19	.2	51	58	.1
14	06	05 05	.0	48	21	.5	34	17	.7	21	12	.8	11	18	.1	52	58	.1
15	07	04 04	.0	50	19	.5	36	14	.6	22	10	.8	13	16	.0	53	58	.1
16	08	03 03	15.9	51	17	.4	38	12	.6	24	07	.7	15	15	.0	53	58	.1
17	10	02 02	.9	53	15	.4	39	10	.5	26	05	.7	16	14	.0	54	59	.1
18	11	01 01	.8	54	13	.3	41	08	.4	27	03	.6	18	13	8.9	55	59	.1
19	12	00 00	.8	55	12	.3	42	05	.4	28	02	.6	20	11	.9	55	59	.1
20	13	7 59	.8	57	09	.2	43	03	.3	30	00	.5	21	10	.8	56	4	.1
21	15	58	.7	59	07	.1	45	01	.3	32	57	.4	23	09	.8	56	00	.1
22	16	57	.7	5 00	05	.1	46	59	.2	34	56	.4	24	08	.7	57	01	.1
23	17	56	.6	02	03	.0	48	56	.1	35	54	.3	26	07	.7	57	01	.1
24	18	54	.6	03	01	.0	50	54	.1	37	52	.2	28	06	.6	58	02	.1
25	20	53	.6	04	00	13.9	51	52	.0	38	50	.2	29	05	.6	58	03	.1
26	21	52	.5	06	6 57	.9	52	50	.0	40	48	.1	31	04	.6	58	03	.1
27	22	50	.5	08	55	.8	54	48	11.9	42	46	.1	32	04	.5	59	04	.1
28	24	49	.4	09	53	.7	55	46	.8	43	44	.0	33	03	.5	59	05	.1
29	25	47	.4	10	51	.7	57	44	.8	45	42	.0	35	02	.5	59	06	.1
30	26	46	.3	12	49	.6	58	41	.7	47	41	9.9	36	02	.4	59	07	.1
31	28	44	.3	14	47	.6	.....	.....	.....	48	39	.8	.....	02	.....	59	08	.2
Total.....	.....	.....	492.0	.....	.....	447.0	.....	.....	378.1	.....	.....	332.7	.....	.....	271.7	.....	.....	253.1

Total for the year, 4476.7. Total for leap year, 4487.7

